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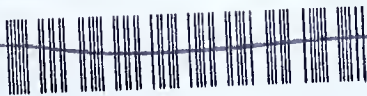
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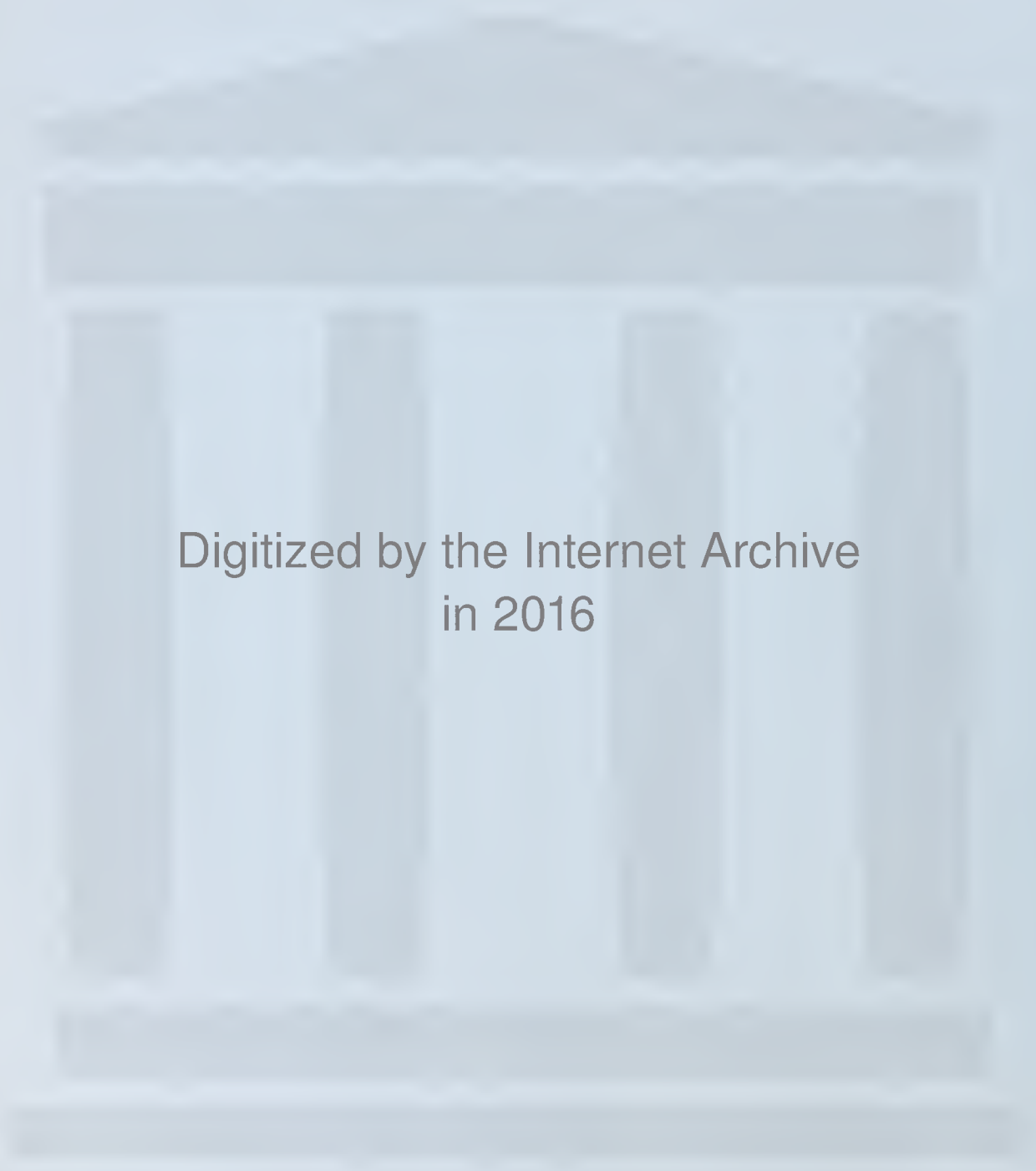
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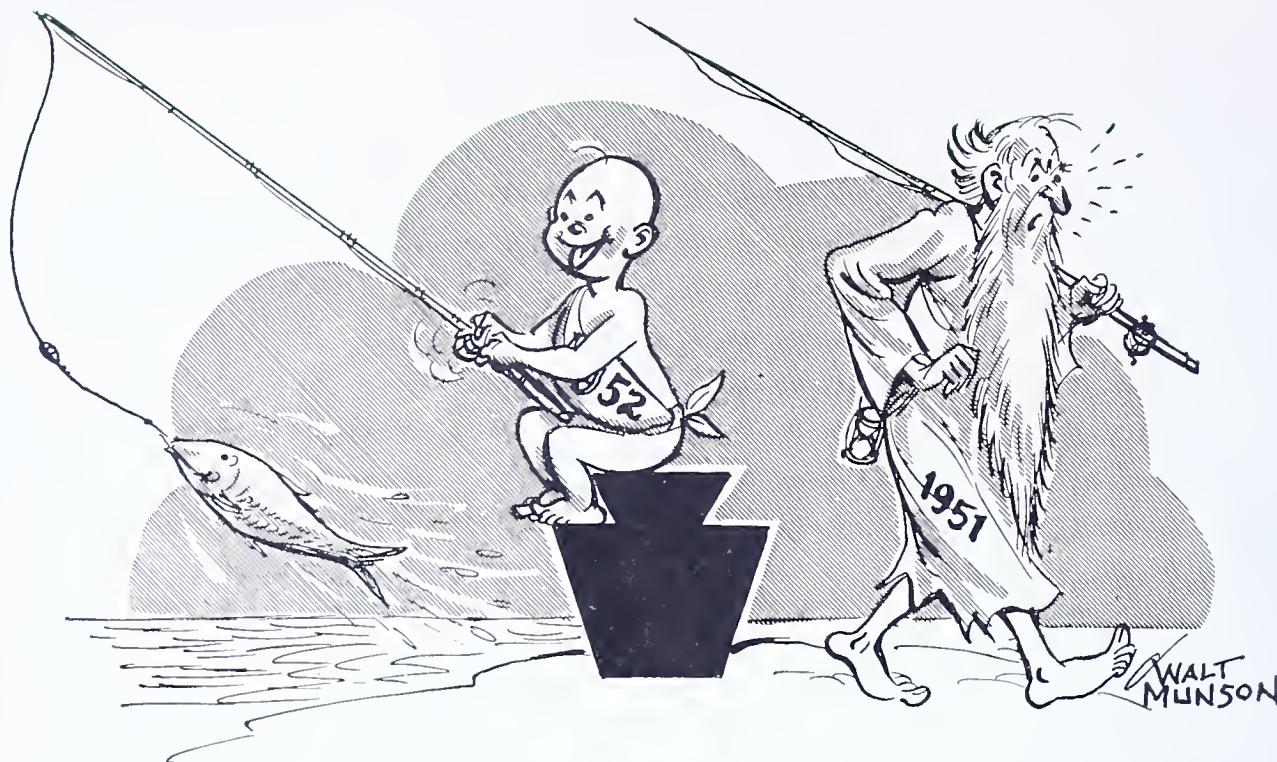
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PENNSYLVANIA

Angler



JANUARY
1952



*A Good
Resolution
For
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PENNSYLVANIA ANGLER

(Form on Page 22)

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JANUARY—1952

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The Cover . . .

COMMERCIAL FISHERMEN bring in haul from Lake Erie's Pennsylvania waters. It's a near-million dollar business with more than 4,000,000 pounds of fish taken in good years. See story by Bill Walsh on Page 12, this issue.

Cover photo from Bill Walsh, Erie, Pa.

Back cover from A. J. Bleistein, Lancaster, Pa., of covered bridge near Slackwater on Conestoga Creek.



George W. Forrest, Editor

1339 East Philadelphia Street, York, Pa

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Drought Causes Fish To Discontinue Fall Trout



▲ A Fish Commission biologist investigates a stream that was suitable for trout in the spring. Drought left it like this in October.



▼ A meadow stream shows effects of a prolonged dry period.



▲ The survival of trout may be low when droughts narrow streams and reduce pools.

▼ A study is made of the stream food organisms.



mmission nting

By C. A. French, Executive Director

Pennsylvania Fish Commission

Photos by George H. Gordon—Official Photographer

THE Pennsylvania Fish Commission has announced that no plantings of legal trout were made last fall because of extremely low water conditions.

As a result of stream investigations by Commission biologists and wardens, many streams were found to be dangerously low; in extreme cases, stream beds were nearly dry. Some of these conditions are shown in the accompanying photographs.



◀ Recording stream flow with a current meter. Perhaps turbulent in the spring, this stream appears very low in October.

The drought of 1951 was unusually severe. However, it is generally true that streams are less suitable for stocking during fall than at other periods of the year. Creel census studies conducted in this state over a period of years, as well as similar studies in other states, reveal that spring-planted trout produce the best returns to the angler. Thus from an economic viewpoint, the best investment of the angler's dollar is in spring-planted trout.

Of the 2,205,943 legal trout planted in 1950, only 188,022 were planted in the fall. This was less than 10% of the total fish stocked. Streams previously stocked in the fall will now receive plantings in the spring.

▼ Wide, shallow areas such as these afford little shelter for trout.

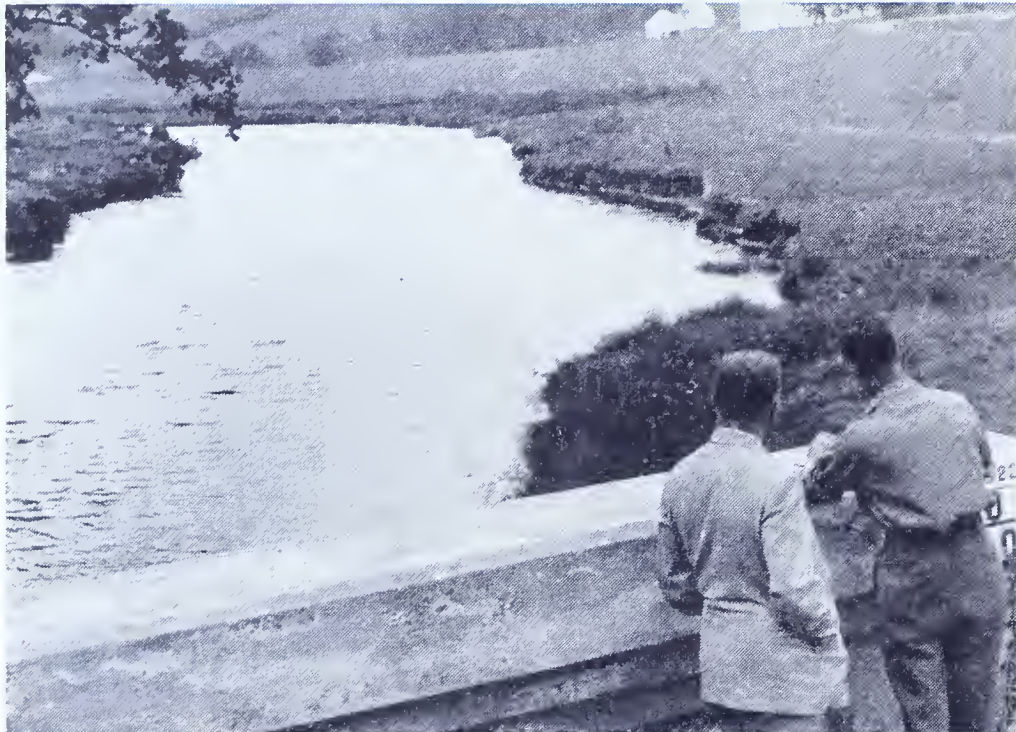


The Chester-Octoraro Lake

By **KEEN BUSS**
Biologist

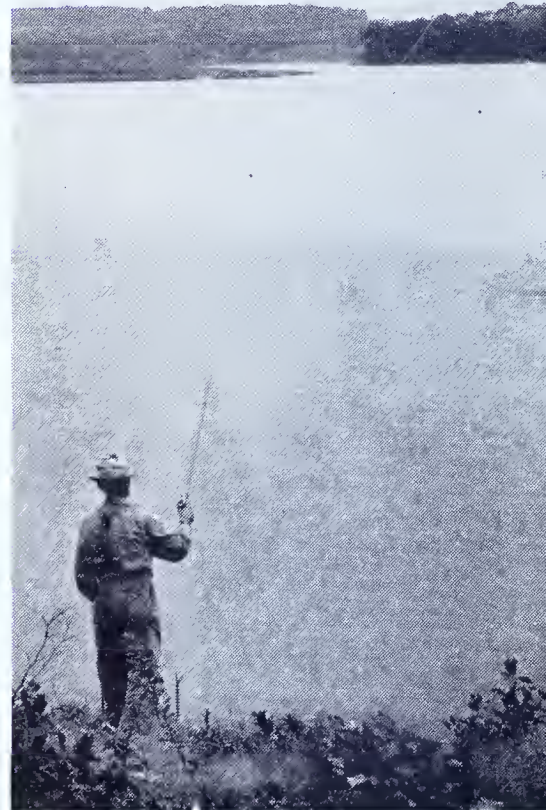
Pennsylvania Fish Commission

—Photos by—
George H. Gordon
Official Photographer



▲ Pictured is C. L. Conner, Executive Manager, Chester Municipal Authority showing Pennsylvania Fish Commission representative Gordon L. Trembley the upper limits of East Branch affected by flooding.

Already fishermen are taking advantage of this ➤
newly created lake.



▼ Here Route 472 marks division of open and closed waters. Fishing waters on right.



SITUATED in the gently rolling hills of Chester and Lancaster Counties lies a new 800-acre lake, the Chester-Octoraro Lake, a development of the Chester Municipal Authority. The gates were closed in February 1951 and within three weeks the land was flooded to maximum capacity. This new body of water lies sprawled over the former channels of the East and West Branches of the Octoraro Creek. The long arms of the lake form a shoreline which fingers its path through the forest and farmland for 20 miles.

This new impoundment creates the largest lake in southeastern Pennsylvania. It is the fifth ranking body of water in area in Pennsylvania and retains 2½ to 3 billion gallons of water which are destined for human consumption in the city of Chester and vicinity.

The proximity of this water to the Reading, Lancaster, and Philadelphia areas opens new possibilities to the fishermen of this section of the state. The Chester Municipal Authority has recognized the possibilities of this reservoir as a fishing site and has graciously opened 450 acres above Route 472 to the anglers. Mr. C. L. Conner, Executive Manager for the Chester Municipal Authority, has noted that the fishermen must remember that this lake is retained for domestic purposes, and the extent of time that the anglers can enjoy this area depends upon their actions and behavior while visiting and fishing this area. In other words, it is mandatory that

the surrounding area be kept clean, and the water must not be a disposal place for wastes of any kind. The sound reasoning back of restrictions such as these is very obvious to anyone who stops and recalls what the ultimate use of this water will be. The sportsmen of this state have seen many hunting and fishing grounds lost to the public because of misuse. Let us not abuse this privilege.

Further restrictions placed on angling are that all fishing must be done from shore—no boats allowed. This will not place a hardship on the angler because the contour of the lake is such as to form a maximum of shoreline for the impounded waters. The other restriction is that all angling must be confined to the area above Route 472.

The Chester-Octoraro Lake promises to be a very prolific lake and should abound in aquatic life. The fertile farmland surrounding this flooded area is a factor which determines the fertility of the lake. Like all new lakes, there will be a very rich production of fish life for the first few years, and after this the population will level off. This more or less static population should still be large.

The lake now contains a variety of fishes. The upper reaches of the lake should afford good rainbow and brown trout fishing since the Pennsylvania Fish Commission stocks the East Branch of the stream above this point with trout. There is also a possibility that the dam may produce some very large



Chester Municipal Authority filtration plant

trout since there are three points in the lake over 50 feet in depth which may support trout. During the past spring, the largemouth and smallmouth bass reproduction was at a high level. This, combined with the Pennsylvania Fish Commission's stocking program, should produce excellent bass fishing. Also included among the fishes in these waters are bluegills, common sunfish, carp, catfish, fallfish, minnows, suckers, and eels. These combinations of fishes should satisfy the varying piscatorial tastes of all anglers.

For this excellent fishing water, the anglers are indebted to the Chester Municipal Authority. The privilege—and it is a privilege—must not be abused. This lake can be used as an example for future developments of this type. Let's set a good example!





—Photos by—
George H. Gordon

Official Photographer
Pennsylvania
Fish
Commission



The cove where this mortality occurred. Observe the wide area of shallow, rich water.



This photograph vividly illustrates the high fertility of the water. Note the thick algae and the soupy appearance of the water.

SUMMER COMPLAINT

In Spring Lake

By DeWAYNE E. CAMPBELL

Biologist

Pennsylvania Fish Commission

WHEN four tons of prize bass and other fine game fish suddenly and inexplicably die in a small lake of 76 acres, it is expected that any sane, intelligent and sometimes frustrated angler will pause to meditate but a short while before asking questions. The question is "Why?"

This lake was originally a small pond discovered by a pair of industrious beavers and built by

them to its present size of 76 acres. A very fertile lake, it has produced and will continue to produce in the future some big catches of whopping big bass, bluegills, perch and bullheads. When the beaver had all retired to become fur coats, man took over and made the dam a permanent affair. It is now given the title of Spring Lake, a pretty little aquatic addition to Bradford County.

Like any healthy and vigorous youngster this body of water is only recently recovered from an attack of summer complaint which occasionally occurs in productive waters. A disorder of this type, however, is naturally quite worrisome to the many mothers who look after the waters of the Commonwealth with their bamboo rods, and to the doctors watching over these same bodies. The following is a brief diary of the condition which began on July 1, 1951.

July 1—Lake "working." To the doctor this means a heavy bloom of phytoplankton (microscopic plants). Heavy mats of algae on the surface.

July 3—Water had cleared. At 2 a. m. bass, sunfish and bullheads came to within six inches of the surface and acted unusual. At 2:30 a. m. fish in distress in a cove and running out on shore. There followed a heavy mortality of largemouth bass, sunfish, golden shiners, and a few bullheads, perch and suckers. Mother is now much sicker than the boy.

▼

Long time residents look glumly at the waste. Like plants that have been thinned, however, the remaining fish should grow larger.



By its technical name this occurrence is known as an aestival anaerobiosis. (You should speak the same language as the Doctor?) It means simply a lack of oxygen occurring in the summer. As implied, a lack of oxygen can cause a similar mortality in the winter but generally due to slightly different conditions—usually a long-lasting cover of ice and deep snow. This is commonly spoken of as a winterkill. Kills of either type ordinarily occur in rich and shallow lakes which often produce the best fish due to this same richness.

When conditions in a very fertile lake such as this become prime, it will produce planktonic algae (same minute plants) in tremendous numbers, sometimes so great as to obscure the hand when it is placed only a short distance beneath the water surface. Under the influence of light these plants will produce through photosynthesis great quantities of oxygen. However, in the absence of light these plants may use oxygen entirely out of proportion to the quantities in which they previously produced it. Dying, they add the rapid decomposition of their bodies to the demand for the now decreasing oxygen supply. This continues to aggravate the critical conditions until something approaching a chain reaction has occurred. The lake may now feel very ill. In purging its overly rich system, a lake may lose a few good fish, but mothers must remember that milk teeth are usually replaced by betters ones.

The Fish Management Unit with the mobile field laboratory (a trailer load of doctors with thermometers and test tubes) arrived on the scene as quickly as possible and found their suspicions to be fairly well grounded. (No one is believed to have poisoned Junior at all.) To be quite certain that all was going well a couple of the Doctors sat up the entire night taking the chemical pulse of the infant. This amounted to establishing chemistry stations over the lake which were checked and analyzed every three hours over a twenty-four hour period. These results are shown in the accompanying chart.

To be certain that everything else in the lake was going well, a

complete lake survey was run. This included a study of the food organisms, angler success, fish diseases and parasites, predators, bottom types and distribution, vegetation, age and growth of the fishes, species of fishes present, and numerous other studies.

The Doctors on completion of the diagnosis do not feel that there has been any permanent impairment of the lake's system, nor do they feel that it will become a chronic

condition of the near future. This fertile body of water has produced very good growth in its fishes and it has many good game fish left to grow even larger than those it regurgitated. To hasten its return to good health, the lake has received a hypodermic in the form of fish stocking. These fish newly released will find conditions much to their liking and will soon provide excellent sport.

OXYGEN VARIATION OVER A TWENTY-FOUR HOUR PERIOD IN SPRING LAKE, BRADFORD COUNTY, PENNSYLVANIA. SAMPLES SECURED FROM A DEPTH OF TWO FEET.

SAMPLES SECURED FROM A DEPTH OF TWO FEET

Hour of Day	Chemistry Station No. 1	Chemistry Station No. 2
3 P.M.	14.4 ppm*	11.0 ppm*
6 P.M.	13.4 ppm	12.1 ppm
9 P.M.	11.4 ppm	11.6 ppm
12 Midnight	11.0 ppm	11.1 ppm
3 A.M.	8.6 ppm	10.4 ppm
6 A.M.	8.1 ppm	9.5 ppm
9 A.M.	9.4 ppm	8.5 ppm
12 Noon	9.2 ppm	10.3 ppm
3 P.M.	10.2 ppm	10.3 ppm

Station No. 1 in the chart was located in the cove where the mortality occurred. This cove averages but little more than three feet in depth over most of its area. This cove is choked with tangles of aquatic vegetation of both high and low orders.

Station No. 2 in the chart was located in more open water with depths of twenty feet. No vegetation of the higher order here.

It should be noted from the above chart that the oxygen in the mortality area fluctuates between greater extremes; from a high of 14.4 ppm to a low of 8.1 ppm over the same time period. This bears out the theory of the importance of light in this mortality. The cove

containing the greatest amount of vegetation produces the greatest amount of oxygen during the daylight hours and consumes the most during the hours of darkness. This results in an unstable water condition which can be dangerous to fish life in the presence of large quantities of decaying organic matter.

It should also be seen that it is possible for conditions to become critical in one section of the lake while remaining relatively safe in another. Why the fish should remain in the cove and die is a matter for conjecture. In the event of a very rapid depletion of oxygen, however, it might be likened to many of the panics accompanying man's own great catastrophes.

* Parts of oxygen per million parts of water. Please note that the oxygen in the above chart is not in a critical state since the lake had recovered from its oxygen deficiency previous to this survey. Fishes of the type occurring in this lake have been known to survive with less than 4 ppm of oxygen.



Male Bowfin (*Amia calva*). Notice ocellus, or eye spot, which develops on male at base of caudal fin.

ANCIENT FISHES

Of Pennsylvania

I

The Bowfin

The bowfin (*Amia calva*) sometimes called a "dogfish," is the only living representative of a prehistoric family whose fossil forms are found in Europe.

Feeding Habits:

This fish is very voracious. It is

carnivorous and feeds on other fishes, crustaceans and mollusks. A large part of its feeding is done at night.

Life History:

Spawning takes place in the spring. The nest is made in a bowl-shaped depression where the female may deposit as many as

70,000 eggs. The nest is guarded by the male. After the eggs hatch, the young travel in schools until ready to shift for themselves. The adults may reach a length of over two feet.

Distribution in Pennsylvania:

Lake Erie drainage.

KEEN BUSS, *Biologist*

Pennsylvania Fish Commission

IN THE spirit of interdepartmental cooperation, a deed on a section of the old Schuylkill Canal was turned over to the Pennsylvania Fish Commission by the Department of Forests and Waters. Honorable Charles A. French, Executive Director, announced the completion of the transaction at the Commission's October 22 meeting.

The mile long closed-in canal section is located in Perry Township, Berks County, along the Schuylkill River just east of the town of Berne. Averaging 30 to 40 feet wide, the section gives a total water area of about five acres.

Already on the approved stocking list for yellow perch, catfish,

FISH COMMISSION ACQUIRES SECTION OF THE OLD SCHUYLKILL CANAL

and sunfish, the Schuylkill Canal section also contains largemouth bass and carp and should make a good "fishin' hole" for a large number of anglers.

A dirt road parallels the entire length of the section and fishermen

may reach this road from Berne or from Route 122 two miles south of Hamburg.

ARTHUR D. BRADFORD

Pathologist

Pennsylvania Fish Commission

Formerly used for navigation, this section of the old Schuylkill Canal which has recently been acquired by the Pennsylvania Fish Commission now serves as a good "fishin' hole."



The White Sucker

A Dual Purpose Fish



▲ Seining the riffle.



▼ A satisfactory catch.

IN Pennsylvania there are at least fifteen different kinds of suckers. Of these probably the common white sucker (*Catostomus commersonnii*) plays the most important part. This particular fish is found in ponds, lakes, and streams and a few short years ago was very abundant.

The spawning takes place in the early spring. The parent fish run upstream and deposit their eggs on fast flowing riffles. During this period these sucker runs were looked forward to with much anticipation by the local citizenry. The catches took place at night with the use of spears, drag seines, and other devices which now, of course, are illegal; and, in addition to being a local get-together with a jug of cider and a lot of fun, it furnished the home with early spring messes of freshly caught fishes and a supply for salting or smoking for future needs.

The slaughtering of hordes of these fish on their spawning beds and the drying up or lessening of the flow of water into the ponds and lakes and tributary streams to the rivers have seriously decreased the number of these fish in many sections of the state.

It is felt by the Pennsylvania Fish Commission that the white sucker and others of its kind play a very important part in fisheries work. It might be called a dual purpose fish. The young furnish food for many different kinds of fish, including trout of various sizes and are looked upon as a favorite food for the walleyed pike or pike perch. In addition to this, angling for these fish furnishes recreation for a great many people. It is difficult of course to accurately check the number of those who fish for suckers in Pennsylvania

By **NATHAN R. BULLER**

Fish Culturist

Pennsylvania Fish Commission

—Photos by—

George H. Gordon
Official Photographer

today but some good authorities estimate that the number of sucker fishermen is next to that of the trout fishermen.

The Fish Commission intends through its fisheries management program and fish hatchery work to attempt to increase the numbers of this dual purpose fish throughout the water areas of the state.

Trained crews of men select ideal spawning riffles in streams entering large lakes or ponds and at night when the sucker run takes place, the fish are caught in drag seines, the eggs are stripped from the females and are fertilized right there at the stream; then the eggs are transferred to the different



▲ Extruding the eggs from a female sucker.

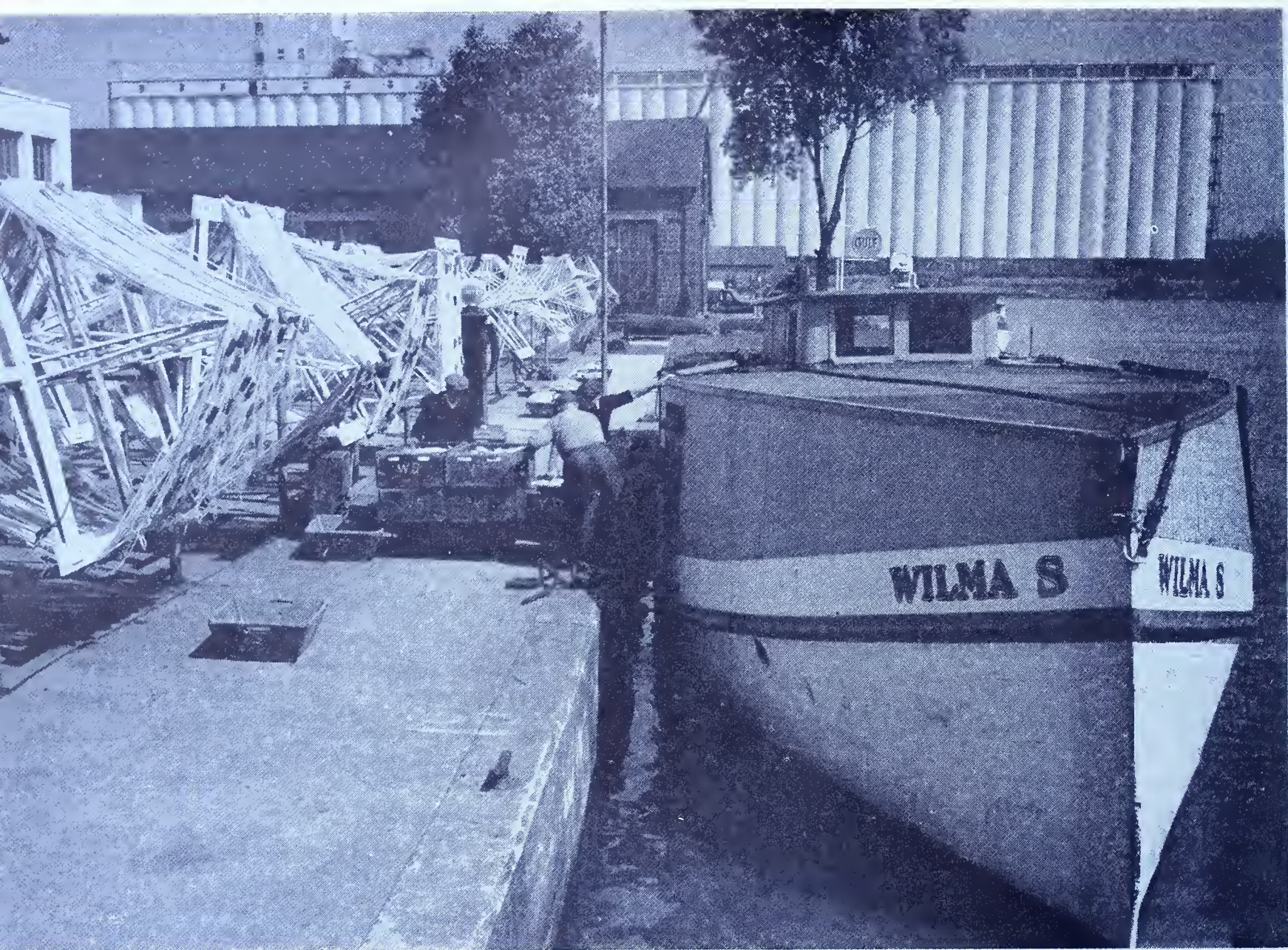
◀ Stripping suckers along the stream bank.



hatcheries for incubation and development. All parent fish that are stripped are returned to the stream without injury. The young suckers are held at the different hatcheries until late fall and then planted throughout the state. At the present time the majority of the plantings are taking place in major bass streams.

These suckers grow to a length of 18 inches or more. They are rather boney but in the spring of the year are considered a delicacy.

Fisheries technicians admire the psychology of the sucker fishermen for they can be seen along the banks of streams, ponds, and lakes almost every month of the year, regardless of weather conditions. It follows that not all of these anglers are successful, but few if any complaints throughout the year are registered by these anglers. If the suckers do not bite, the fishermen leave the stream to return again to try their luck.



One of Erie's bayfront landmarks, the huge grain elevator in the distance, forms a backdrop for the loading of nets onto the Wilma S. The nets can be seen drying on the drying racks to the left. They are gill nets.

COMMERCIAL FISHING

In Lake Erie's Pennsylvania Waters

By Bill Walsh—Outdoor Writer

Many fish you enjoy on today's menu come from Lake Erie, last outpost of commercial fishing in Pennsylvania. In good years more than 4,000,000 pounds of fish, worth almost three-quarter million dollars are taken by the Pennsylvania commercial fisherman with his modern diesel-powered tugs and giant nets.

FISHING—one of the oldest occupations in the world—is also one of the oldest occupations in the recorded history of Erie, the city which is Pennsylvania's lake port and which is so ideally situated at the top of the northwest "chimney" of the state.

The history books tell us that during the year 1796, commercial fishing began in Erie. It was in that year the last few members of a settlement of the once proud Seneca Indians moved out of their ramshackle huts at the "head" of Presque Isle Bay, Erie's natural harbor. A mulatto, to whom the history books only refer

as 'McKinney,' moved into the settlement and for his livelihood he caught and sold fish to those of the town's early residents who had neither the time nor the inclination to catch their own.

McKinney is known to have used only the hook and line in his trade—and what a trade it must have been. Many a modern-day sportsman would happily trade "much wampum" to be able to put, in what McKinney considered, a day's work.

For in those days, Presque Isle Bay and the surrounding waters of Lake Erie fairly boiled with many valuable species of fish. The finest

of good tasting food fishes and the best and biggest of hard fighting game fishes.

From writings on the subject it is apparent that herring (ciscoes) were the most numerous at that time, although whitefish and large lake perch were also found, in what seemed to early settlers, an endless abundance. And there were lake trout and sturgeon, blue pike, walleyes, great catfish, bullheads, and myriad numbers of large sunfish, rock bass, bluegills, and white bass.

On the game fish side there were large bass and heavy Great Northern Pike. It seemed there would be enough food and game fish to care for the needs of many generations of Pennsylvanians. It appeared their supplies would never dry up.

Let us see how the commercial fishing industry has grown from the dug-out log canoe to today's diesel-powered tugs with their giant nets capable of lifting tons of fish at a time. Valuable fish which have an important part in sustaining a high standard of living in Pennsylvania and throughout the nation.

First, here is a picture of the commercial fishing set-up in Erie during the 1950 fishing year—a season that saw a total of 2,473,580 pounds of fish taken with a total value of \$688,726.61.

Six commercial fishing companies, fishing the waters of Lake Erie, made up the catch. They are the Union Fish Co., Barcelona Fish Co., Circle Fish Co., Erie Fish Co., Smiley Fish Co., and the Ralph Fish Co.

Together these concerns own a



▲ Though weight of this grand-pappy whitefish is unrecorded it's a real armful. These fine, tasty fish were once abundant but catches are dwindling. The Fish Commission procures eggs, and through hatchery program stocks waters of Lake Erie.

➤ A pound net full of mixed fish (perch, white bass, and blue pike) sense that their hours are numbered as the boat nears to scoop them up and start them on the way to market.



total of 34 fish tugs and the average crew for each boat is about five men, which means that with all tugs operating, a fleet population of about 170 active fishermen are "aboard."

Other men are needed to man the "shore installations" of this small lake navy to handle office work, shipping, filleting and packing of fish, and the storing and icing, or freezing, of fish not immediately shipped. The number of these landlubber fishermen depends largely on just how successful are the real sailors in their task of bringing in the fish which varies from month to month and year to year. Some of them are seasonal "part time" help and no figures are readily available on how many are required.

However, when the catches are good, it is estimated that, exclusive of office workers and management,

at least as many men are employed on shore as are needed to man the tugs.

To demonstrate how the catches vary from year to year, one needs only to look at the records for the past five years. The following shows the total number of pounds of fish caught for each of those years and its value in the dollars and cents that keep the industry alive.

1950—2,473,580	pounds of fish
worth \$688,726.61.	
1949—4,435,895	pounds worth
\$712,532.32.	
1948—2,533,862	pounds worth
\$522,290.71.	
1947—1,357,010	pounds worth
\$354,779.77.	
1946—3,664,725	pounds worth
\$489,287.24.	

In 1950 the principal catch was 1,177,448 pounds of blue pike which sold for \$213,241.22 or

roughly at about 18 cents per pound. The blue pike is no doubt the fish largely responsible for the fame of the fish sandwich. Almost anywhere in the state when a fish sandwich is seen beside a bottle of catsup, the odds are three to one the principal ingredient is a Lake Erie blue pike fillet. And they're delicious.

Yellow perch, too, are a mainstay in the fish sandwich trade, and in 1950, a total of 71,868 pounds of these were taken worth about \$13,000 to the commercial fisherman or about 18 cents per pound.

In the lake area, the walleyed pike is called a "yellow pike." In reality he is a member of the perch family and is a better than first cousin to the blue pike-perch which commercial fishermen shorten to the "blue pike." He is not caught in great numbers in Pennsylvania waters since the Ohio waters of Lake Erie are his true abode.

However, in 1950, commercial fishermen here brought into port a total of 38,364 pounds at a value of \$10,015.75, or about 26 cents per pound, putting him in a higher money bracket than the perch or blue pike.

The 1950 whitefish catch totalled 979,197 pounds of fish at a value of \$413,320, or about 42 cents a pound.

The vanishing lake herring (ciscoes) showed up in the nets to the tune of 74,606 pounds with a selling price of \$27,644, amounting to about 35 cents a pound.

The Pennsylvania Fish Commission's Erie Hatchery is presently carrying on an aggressive program designed to increase the supplies of walleyes in the lake. This year, under the direction of hatchery superintendent Edward Hahn, a total of 47 million walleye eggs were secured from Ohio and placed in incubation in Erie.

The hatchery realized an 87 per cent achievement in the project and released 40 million yellow pike fry into local waters. Incidentally, this 87 per cent hatching record is far greater than Mother Nature could accomplish by herself due to the natural hazards which are ever present in the lake but which are eliminated in a hatchery program.

Sport fishermen, as well as the commercial variety, benefit from a stocking such as this, since trolling for walleyes is one of the major fishing pastimes from the

The fish in the center of the picture are white bass, while those in the foreground (their shining eyes give them away) are walleyes, or what the commercial lake fishermen call yellow pike. The fish go from the nets immediately into iced crates to preserve the flavor and texture of the flesh.



➤ A couple of husky fishermen hold up a husky fish. The lake giant is a sturgeon and few its size are taken any more. Inasmuch as they are bottom feeders they are seldom taken in the lake on hook and line, but occasionally get hooked on "trot" or night lines, set by commercial fishermen who have permits for that type of fishing.

▼ Workmen here are "stripping" poles which will be driven deep into the bottom of the lake for the setting of pound nets. The "poles" are actually trees which have been selected for their straightness and height.



a bottom, the fish being led into it by long "leads" which extend from the sides. These nets are secured in place with long poles driven deep into the bottom of the lake where they are set.

The gill nets, when taken into the tugs, are hauled on board by powerful machinery especially constructed for that purpose and the fishermen then begin to "pick" the fish from them.

A pound net fisherman brings most of his net on board until the fish which have entered are contained in a pocket between the posts on which the nets are set and his boat. He then proceeds to bring the fish on board by dipping them from the pocket with small hand dip nets. This method is best when there is any reason for bringing in live fish, for they can be transferred to water tanks on the boat.

Commercial fishermen must license their boats in order to stay on the right side of the fish warden's sphere of influence. These licenses, issued by the Fish Commission, cost \$40 for a boat under ten tons, \$60 for a boat over ten tons but under twenty tons, and \$80 for a craft over 20 tons.

Since Erieites have a definite taste for fish, many of the fish
(Turn to Page 22)

Ohio state line west of Erie to the New York line to the east. Literally dozens of boat liveries and live bait dealers are set up for this sport which attracts as many "downstate" fishermen as it does local Ikes.

Also on the 1951 hatchery program at Erie was the stocking of 1,250,000 blue pike fry and 1,500,000 lake herring fry.

In addition, 317 million yellow perch fry were introduced into both the waters of Lake Erie and Presque Isle Bay. Here again, both sport and commercial fishermen reap the harvest, for perch fishing through the ice is a popular winter sport, and the commercial fishermen are looking for greater catches of the tasty yellow perch in their nets in the lake.

Speaking of nets, the commercial fishermen are currently using gill

nets and pound nets in Lake Erie waters, the gill net accounting for the greater number of fish, partly because of its efficiency, and partly because more companies are using them. Only one company uses pound nets exclusively.

The method of catching fish in a gill net is simple and its name gives it away. The fish attempt to swim through the net, are stopped by the mesh, then in trying to "back out" of what seems to them a bad proposition, they are caught by the gills. The mesh on these nets is controlled in size by the Fish Commission in order to allow undersize fish to pass on through unharmed. In order to fish these nets, they must be inspected and approved by Fish Commission personnel.

A pound net is actually an impounding net with four sides and

LAST spring I found myself on a stream that is thought to be completely devoid of fish. Subsequent enquiry disclosed that it hadn't been stocked for more than a quarter of a century. But, the angler is a queer critter, he will try anything that looks even remotely fishable.

As I assembled my outfit I could not help but recall an incident that had befallen one whom I consider a top trout fisher. He had hooked and landed three fine brookies that had flashed out from between the interstices of a rusty bed spring cluttering up the bottom of the stream he was fishing, to grab his oncoming lure. What is more, the locale was practically on the outskirts of a fairly large town and adjacent to a heavily traveled highway. The vast army of fishermen that eyed it were deterred by the unnatural color of its water. What those who passed it up didn't know was that except for its color the water was pure and cold enough to support brook trout.

Anyway, I offer the above as an excuse for frequently fishing what look like the most impossible waters. So, after assembling my tackle I made my way down through an alder thicket to a point where there was sufficient clearance for my backcast.

My brightly colored streamer landed above an old tire casing plainly visible through the stained water, to begin its erratic trip over a maze of miscellaneous junk. As the streamer danced over a rusted bucket, there was a swirl and I missed or what is more likely, the fish turned aside at the last moment.

Some fifteen minutes later I was compelled to admit that even trout living under the conditions imposed on them by what many consider the signs of a progressive civilization, are as wary as their brethren of remote hemlock bordered, spring-fed streams. Indeed, more so.

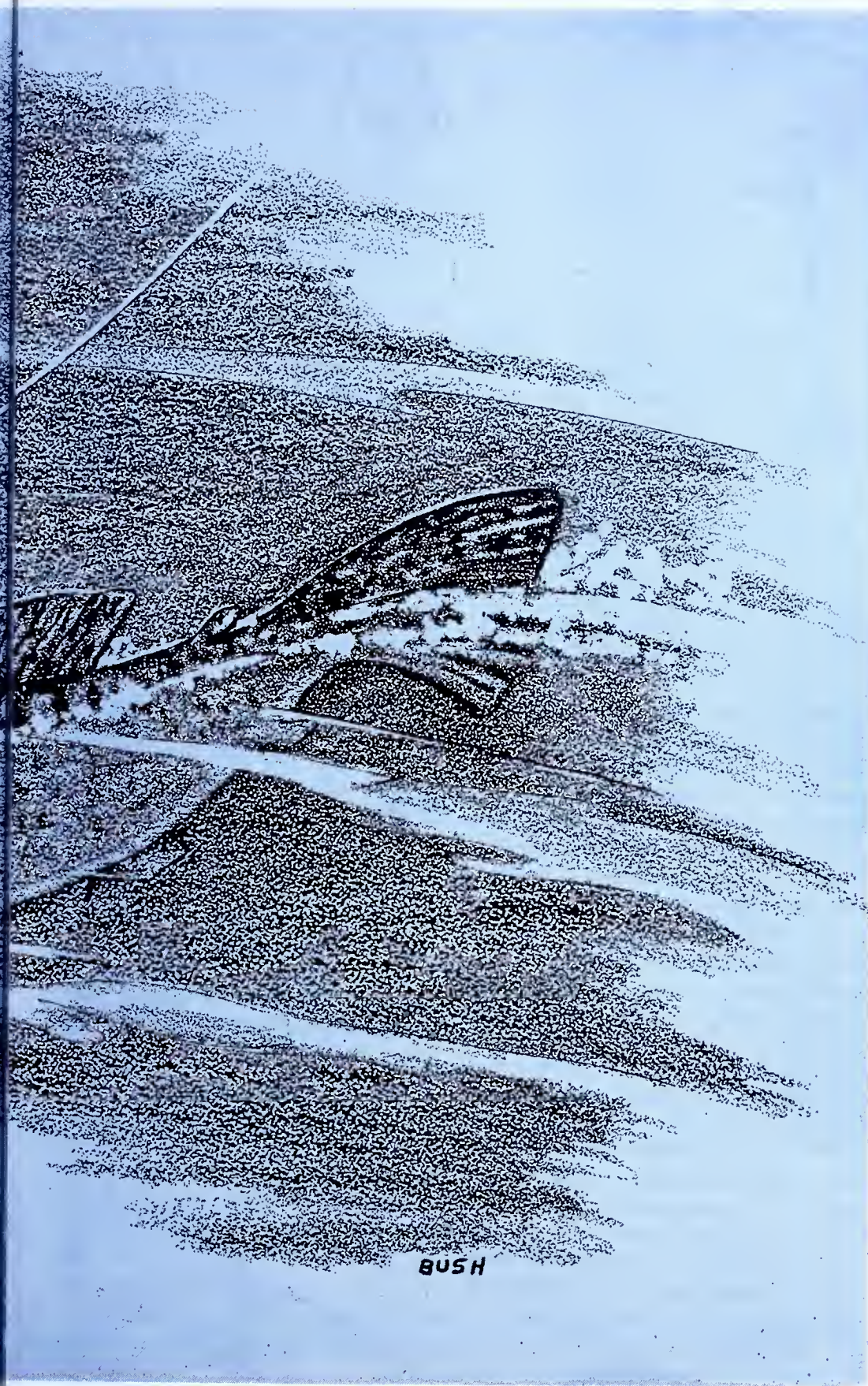
After a leisurely smoke I returned to the spot, this time with an eight-foot 5X leader affixed to my line. Well, naturally, you have anticipated what happened. However, I did not take one, but three pair of nine and ten-inch richly colored brook trout; fish that prob-



Lead the Way

By

Leaders are commonplace but form a mystery. Little is yet known of how much fish act on experience, are extremely fussy in the motions, and fish selectivity.



With Leaders

part of any angling kit and equipment. Wise anglers with years of background selection to coincide with stream condi-

ably had three generations of wild, native ancestors behind them, and wise as serpents are supposed to be. Obviously, success was attributable to my using a finer leader than the one with which I had started.

Does a fish see a leader? If he does, surely he can't associate the fly or lure as being attached to it. If fish are conceded to be so smart as to exercise the power of association, how come they frequently pull the boners they do? What probably perturbs the fish more than anything else is the disturbance created over a considerable area by the surface drag of a heavy or improperly handled leader. When a fish sees the undue commotion, it causes him to swerve from his objective so as to avoid what to him are suspicious movements. Sometimes I find myself thinking that fish are more suspicious of the strange, unnatural movements of lures or flies than they are of a plainly visible leader.

Skillfully using a leader of the proper size enhances the chances of catching fish. Even the chances of the tyro are augmented by the use of leaders.

What, you may inquire, is the correct size to use? Usually the finest consistent with the size of the fish sought. Of course, if you snag a fish much too heavy for the leader you happen to be using, then, you'll have to worry it out to the best of your ability.

Large fish are smart fish. This not so difficult hypothesis is arrived at by virtue of their having reached a ripe old age as well as aldermanic dimensions. This poses a real puzzler for the fisherman. How can he land the fish when he hooks him on a leader fine enough to have fooled him in the first place?

If the immediately foregoing was the only consideration it wouldn't be so bad. But, there is the matter of handling small flies. To lay a number 18 smoothly and neatly the use of a fine 4X or even 5X leader is practically essential. And it's positively uncanny how consistently large trout will go for ultra-small flies.

(Turn to Page 22)



Fly Rod

FLY FISHING has indeed an ancient and honorable background. Unlike the rest of our present-day outdoor sports, fly fishing has come down to us through the centuries comparatively unchanged. Moreover, it antedates all other sports, with the possible exception of archery. Wing shooting, for example, is quite young in years, when compared with fly fishing. While gunpowder was invented by the Chinese at some undetermined date many hundreds of years ago, its use in warfare was not well established prior to the 14th century and fowling pieces were not in common use until about a century later.

By comparison, consider the origin of fly fishing. The first book on the subject to be written in the English language was done by a woman, strangely enough—a

prioress in a nunnery in England, Dame Juliana Berners. She titled it "Treatise on Fysshynge wyth an Angle" and she wrote it sometime during the 12 century. But this was by no means the first written account of the sport. In ancient Macedonian literature, some 300 years before the birth of Christ, there appears an account of fishing with artificial flies, composed of black wool and a red cock's hackle, in the waters of the Nile. Unfortunately the account does not give us any data on rods, tackle and methods, but the unalterable fact remains that those old boys actually were fly fishing at that early date.

The fly rod underwent most of its early development in Great Britain. It is doubtful that there is a wood that grows which has not, at one time or another, been tried out as a material for fly-rod

construction. Gradually, however, the selection of the early rod makers narrowed itself down to lancewood and greenheart. Until comparatively recent years—and by "recent" I mean the past thirty or forty years—these two woods were held in high esteem by British anglers. Throughout the angling literature of Great Britain prior to 1915 there is constant mention of "the sweetness of greenheart" for casting a wet fly.

To an American, however, must go full credit for the idea which revolutionized the art of rod building—a man named Samuel Phillippe who lived in Easton, Pa. Phillippe was a gunsmith and a maker of fishing rods. As is true in most things of this sort, there are many claims concerning the builder of the first rod of split bamboo cane. Some writers attribute the honor to a British rod builder, Aldred by name, who lived and worked in London and who attempted to construct satisfactory rod tips on "tops," as he

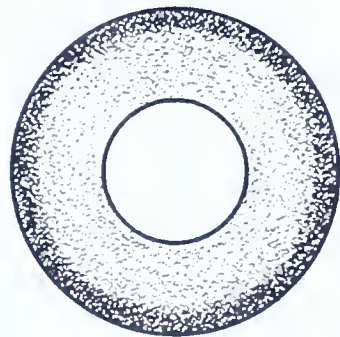


Fig. 1-A

1-A shows a cross section of a Calcutta bamboo stick. Note that the hard fiber, as indicated by the darker shading, lies next to the outside skin and is not deep.



Fig. 1-B

1-B shows a cross section of a Tonkin cane stick. Notice that the hard fiber is almost twice the width of that in Calcutta cane of the same diameter.

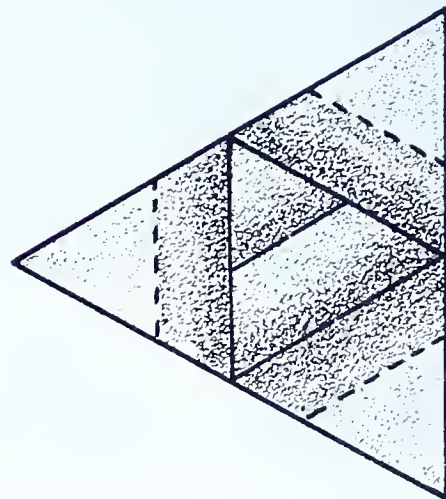
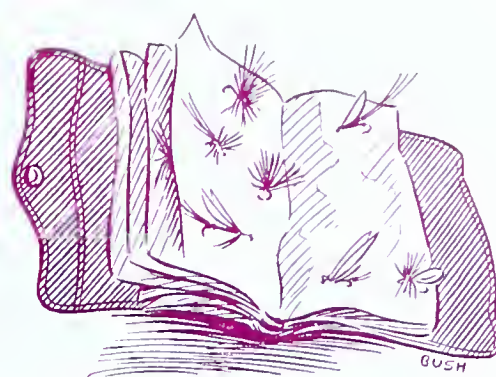


Fig. 3

This is a cross section of the George Parker Holden 5-strip assembly. The central triangular strip is of double-built construction. The three outer triangular strips are glued to the central strip with the hard areas inside the rod section. The completed section is then planed down to hexagonal form with the corners slightly rounded.

In America

By JOHN ALDEN KNIGHT



Who but John Alden Knight is better qualified to present this most important history of the fly rod in America. Mr Knight's influence in the angling world has been felt wherever men fish. He was responsible for the famed Solunar Tables, the Mickey Finn, the parabolic rod, the flat-bodied nymph and a host of other modern fishing tackle innovations. The ANGLER is more than delighted to commence this first in the series of a classic work.

feet 4 inches long, weighing exactly 8 ounces. The rod was made in four sections, the butt being of ash and the upper three sections of split bamboo. Ferrules and reel bands were of brass.

One of Phillippe's rods (which we have been assured by one of his grandchildren was one from his own fishing kit) is now owned by The Anglers' Club of New York and is on exhibition in the club rooms on lower Broad Street, New York City. At the time this rod was presented to The Anglers' Club, I was functioning as chairman of the house committee, so I had ample opportunity to look it over before it was locked away in its exhibition case. This rod is three-piece, all of split bamboo, and about nine feet long, weighing about 6 ounces. The reel seat is of metal, nickel plated, as are the ferrules. The butt is somewhat on the heavy side and the taper is quite uniform to a light tip, making it definitely a "top-action" rod, but it could very well be used for fly fishing as we do it today. So far as we know, all of Phillippe's rods were made of Calcutta cane which seemed to be the favorite material of rod makers until around the turn of the century.

(Turn to Page 28)

called them, of sawed-out sections of bamboo. His method, however, was faulty as he cut his pieces from the smooth portions of the cane between the nodes and then glued these together to make the complete section. These did not last very long in active service and the idea was abandoned. That was around 1844 to 1846.

Reliable British and American writers, such as F. G. Shaw, Dr. James A. Henshall, and Dr. George Parker Holden, after considerable research into the matter, have handed the laurel wreath to Samuel Phillippe who began his experiments with split cane not later than 1845. The probabilities are that he had done some work along this line prior to that time (eyewitness reports from visitors at his shop indicate that his technique with this form of construc-

tion was quite well developed by 1845) but we have no documentary testimony to that effect.

In 1851 a London firm, no doubt wishing to improve on Phillippe's method, turned out for the market "rent and glued-up" cane rods, but this firm cut the strips so that the hard outside enamel of the cane was on the *inside* of the rod. Of course, you know what happened to those creations. Those hard glued-up cores actually functioned as fulcrums over which the softer fibers were bent and stretched while the rod was in use, rendering breakage inevitable.

Phillippe made his rods variously. Some of them were of mixed woods while others were all of split bamboo. One of these which was on exhibition at the World's Columbian Exposition in Chicago in 1893 was described as being 11

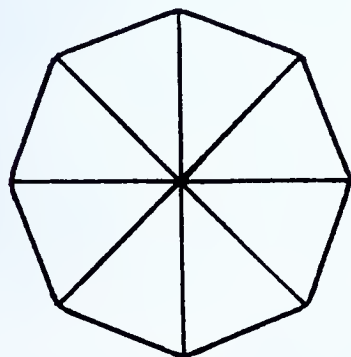


Fig. 2-A

Cross section of 8-strip assembly of a rod section.

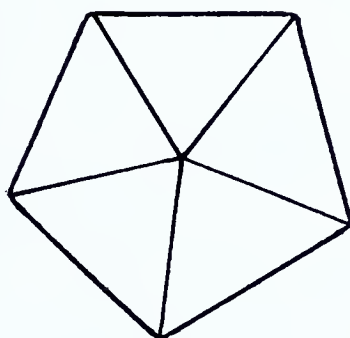


Fig. 2-B

Cross section of a 5-strip assembly of a rod section.

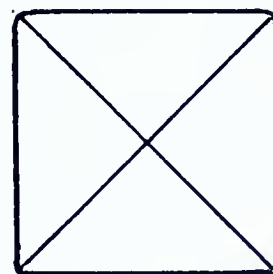


Fig. 2-C

Cross section of a 4-strip assembly of a rod section.

Luck

versus

Skill

By HOWARD T. WALDEN, II

This ancient, but interesting controversy is just one delightful chapter from Mr. Walden's book, **UPSTREAM AND DOWN**.* After reading this and another chapter, **BIG ONES**, which the **ANGLER** will present in a subsequent issue, you will want to add **UPSTREAM AND DOWN*** to your angling library.

THE trout angler probably assays a slighter content of superstition than the deep-sea fisherman or even than the caster and troller for bass and pickerel. There must be a good reason for these varying degrees of addiction to the occult, and I think it lies in the relative extent and depth of the water fished by each class of fishermen.

The ocean has ever been mankind's favorite repository of mystery and dark legend. Many strange and fearsome creatures come up to the surface of the sea in the drawn nets. These are visible evidence of that unapprehended life of the submarine grottoes, an other-world of such forms and processes as are foreign to the land and the shallow land-bound waters. It is likely that some of this dusky inscrutable character of the sea has been instilled into those who for

generations have dropped their lines and nets into its awful depths. Your average professional seine-hauler is as full of superstitions and offside notions and fancies as his seine is at times full of sea robins, skates and horseshoe crabs. Your bass fisherman has a faint semblance of sanity as he sits in the stern sheets of a rowboat, heaving his plug at the edge of the lily pads. Yet he, too, is entertaining a nice assortment of bats under the crown of his Stetson. There are no such fathomless pits of the unknown beneath his rowboat as those which underlie the deep-seaman's dory, yet he is fishing practically always over a bottom which he cannot see and which,

therefore, he cannot understand.

But the trout fisher is closer to the known and familiar elements of the land. His fishing water has, almost everywhere, a bottom which he not only can see but can feel with the soles of his waders, and at the time of the low late-summer levels much of this bottom becomes dry land, frankly open to his minute inspection. His mystery has definite limitations: nowhere is he directly connected by water with the crypts of Hades. Yet even in him are traces of that murky contamination which the fishing instinct synthesizes in its victims.

Certain common superstitions are to be met with everywhere in the trout country. Probably a great many more, less common, could be unearthed, but only by an efficient snooper for it is likely that these are more jealously guarded. A be

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belief in charms and amulets and hoodoos is a thing not usually advertised by the victim. He is a little ashamed of it; while not doubting his own sanity he fears that others may do so if he reveals any sign of intercourse with demons. Those loud proclaimers of a belief in this or that cabala are mere pretenders; they are affecting an identification with witchcraft which they do not have at all.

Keeping records and various tabulated data on the number and size of fish caught, flies used, weather and what not is a business pursued only by those matter-of-fact souls who do not suffer from—or enjoy—superstitions. The others emphatically do not keep records. They try to forget just how many they caught today, and they do not think twice—once being enough to remember it until the next time—about the fly which was the particular killer.

Following a run of fairly prosperous sessions astream one of my angling friends fell to musing upon his totals. I cautioned him not to think of them but the warning might as well have been left unsaid. His contemplation, which had been pretty generalized and harmless, grew specific. Presently he was putting things down on paper. His memory worked well. Ruled lines drew themselves out, column after column of figures and notes got themselves down in black and white. His interest in the job quickened to excitement. It looked like the birth of another bookkeep-

ing angler, another scientist to menace the trout waters. It saddened me no little: this chap had seemed safely above this petty addiction to statistics. And, despite his burgeoning enthusiasm, I could feel a sinister and dark influence growing in that room, almost as if the lights were dimming out. I knew what it was: the scowl of one of the imps, of course. Something else was being put down in one of *its* books, and filed for future reference.

And not far in the future, either. Two days after that fateful evening we were on the stream again. The day was ideal for the dry fly, cloudy and cool and still, with a faint northeasterly prescience of rain. There was no sensational hatch but all afternoon flies were over the water and no hour was without a few authentic rises. In the deep dusk, after six hours of the sort of fishing which I enjoy not more than three or four times a season, I walked back to the car. My partner was there ahead of me, laboriously and dejectedly folding up his gear. He shook his head as I approached.

"Just the day I thought it would be good, too," he said. "You get anything?"

I opened my creel, wherein they were piled up, and put it under one of the headlamps for his inspection. I drew out a couple of the better ones, a fourteen-inch brown and a rainbow nearly as large. He looked at them in silence, in a kind of inarticulate consterna-

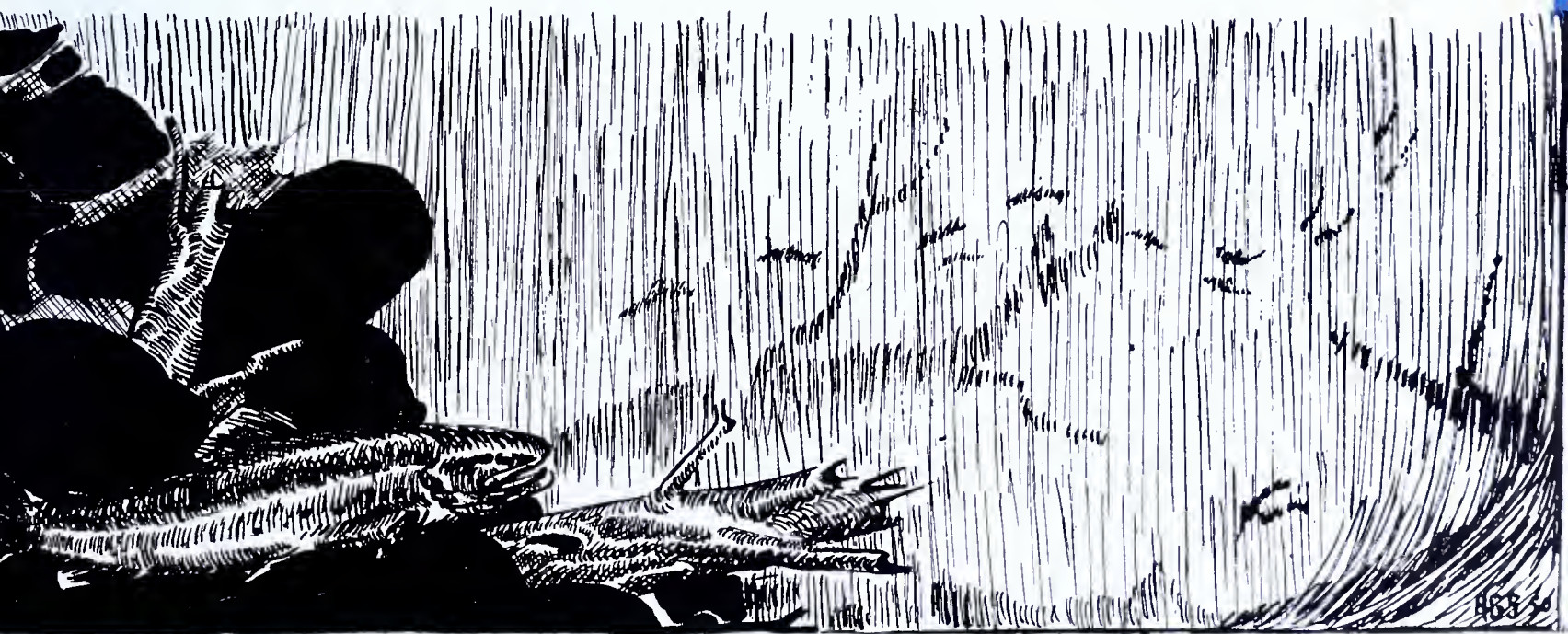
tion. He is not used to being trimmed by me in that fashion.

He was less than usually talkative on the drive home. I guessed that he was brooding upon his records, trying to reconcile this humiliating result with his new-found delight in statistics. How would this goose egg appear in that column of fat figures!

The weather held—the promise of rain without the rain, the unseasonable cool dampness—and the next afternoon we were at it again. I did not do quite so well as the day before but I brought back five fair fish to the car when the darkness closed down. This time my partner was not there ahead of me: indeed nearly an hour elapsed before I heard his waders clump-clumping up the path from the stream. And before he arrived at the car I could guess the story. There was a quality in the rhythm of his footsteps, a shade of meaning that was unmistakable to me. When you have fished with a man for years on end you can measure his luck by the tempo of his homeward gait. Is it odd that the heavier his creel the lighter his step?

I gave him the rhetorical question and he raised his basket lid under the headlamps as I had done the night before. "This is our deluxe model, madam," he began, drawing forth a fifteen-inch rainbow. "Streamlined in the real sense of the word. Distinguished appointments—ease of acceleration" . . . A ten-inch brown emerged next.

(Turn to Page 24)



CAPT. DON WINTERS, ANGLER WRITER, FLIES LAST MISSION IN KOREA

Captain Donald F. Winters, former writer for the PENNSYLVANIA ANGLER and well-known sportsman of Star Route, Titusville, Pa., made his final mission last October 1 when his plane crashed into a mountainside somewhere in Korea.

In World War II, Captain Winters flew 48 missions as a bombardier. On his 49th mission his plane was hit by German fire over Austria and burst into flames. Don parachuted, was captured by the Germans and held prisoner five months.

Recalled back into the service in April, 1951, he went overseas almost immediately. Don was on his 15th bombing mission when he died. He was 32 years old and leaves a wife and two children.

ANGLER readers mourn the loss of a splendid sportsman and grand fellow. His latest articles appeared in the ANGLER: *Summer Resort Bass*, July 1950 issue, and *Tom Thumb Trout*, October 1950 issue.

If there is a cool, clear, peaceful stream over the Great Divide, we are confident Don Winters is happily casting a fly. Farewell, Don, to you who gave so much and expected so little!

COMMERCIAL FISHING IN LAKE ERIE

(From Page 15)

caught in Lake Erie don't have to travel far to find a dinner table, either at home or in a restaurant. Lake Erie whitefish, planked and with all the "trimmings" on the side—when available—is a staple on many menus.

Otherwise, fish are sold to distributors who ship them to any point in the United States where they have established a market. The fish "hungry" points like Pittsburgh and other inland cities and towns provide ready markets for lake harvests. And through the science of quick freezing the fish arrive in far away places almost as fresh as on the day they were caught.

A glance at the catches and their value for the past five years shows that there is still money in the fishing industry. However, old time fishermen still remember the "good old days" and wish they were still with us—for the fishery resource is not what it used to be, particularly in the catches of the valuable whitefish and the lake herring. And in many cases, today's commercial fishermen realize that those who fished the lake before them with little regard for conservation practices are mostly to blame for the present-day deficiencies that can be attributed to over-fishing in the past.

They remember the great catches of 1924 and 1925 when uncounted tons of herring were brought into every lake port that could handle them. The tugs followed the fish down the lake, filling their nets, then rushing them to fish houses for processing. In Erie, tugs from Ohio, Pennsylvania, and New York dumped their catches on the over-worked facilities. The burden became so great local processing centers were working day and night, cleaning, icing, salting, and packing fish. Finally, a limit of only one ton of fish per boat was imposed but it was still too great and no one will ever know exactly how many tons were wasted. One old timer tells of over 100 tons that were sold to one farmer as fertilizer after they could not be shipped in time to save them.

In 1950, 74,606 pounds of herring were taken. Other years show: 1949—27,593 pounds; 1948—99,726 pounds; 1947—443,293 pounds; 1946—2,936,336 pounds. Fishermen agree that the 1951 catch, not yet totalled, will be disappointing.

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Send check or money order payable to Commonwealth of Pennsylvania. Mail to the Pennsylvania Fish Commission, South Office Building, Harrisburg, Penna. Cash sent at your own risk. STAMPS NOT ACCEPTABLE.

The 1951 catch of whitefish has also been on the disappointing side, many boats giving up their efforts long before the usual quitting time.

So it would appear that today's well-equipped fisherman—with his modern tugs, nylon nets, ship-to-shore telephones, net lifting equipment, freezers, refrigerators, and packing facilities—has only one pressing problem: how to find enough fish to keep his men and equipment at work. All agree that 1951 has been on the heartbreaking and purse-stretching side of the book.

For 1952 they're looking hopefully on the bosom of the Old Mother Lake, wondering if she will produce another miracle of reproduction for fish in the nets and on Pennsylvania's dinner tables.

LEAD THE WAY WITH LEADERS

(From Page 17)

A wary, old brown in a Warren County creek was hooked by a couple of my fishing friends. In each case the fish readily accepted offerings bent to a 4X leader (about 2 pound test) only to get away with terminal tackle. Heavier gut was studiously shunned by the fish. However, his was an ignominious end as he finally fell for a gob of worms floated past his lair after nightfall. What is more confounding is that the lucky fisherman

fished without what most trout-ers consider an indispensable part of their tackle. His outfit was completely innocent of leader material unless the few inches on his snelled hook could be so considered.

You may have the opinion that the use of a leader after dark would scarcely make any difference. My belief was similar until I had a night session with the giant browns that have practically taken over in an Elk County stream. To me it was a most baffling experience, the trout rising to an infinitesimal fly in a void as dark as the inside of a tackle box. I had to revise my ideas about the trout's ability to see. Again, if a bass can see and hit a plug in water as thick as pea soup, how in the world can he miss seeing a leader in broad daylight?

Seemingly, it doesn't make any difference whether one is fishing a glassy surface or one whipped up by a smart wind, the fish will detect any false moves made by a heavy or even medium size leader that is clumsily handled. Some authorities contend that a fish sees a leader regardless of size or color.

The immortal Dr. Henshall who experimented endlessly with leaders of different colors and diameters finally came to the conclusion that the best that one could do was to select the finest, roundest, and most perfect gut available, remembering, meanwhile, that a sight of the angler himself is more fatal to successful fishing than a display of the coarsest leader, or of the most objectionable color.

Regarding color Dr. Henshall really had something, although we found some leader manufacturers tinting their product in different hues. However, considering the many backgrounds against which a fish sees a leader, how, then, could any hue make any difference? Those who have probed deeply into the study of fish optics declare that little or nothing has been learned which enable us to interpret what the fish sees as we see it through our eyes. It can, however, be concluded that the fish sees as well in its own element, perhaps better, than we in ours.

Some years ago I turned out an article based on a series of under-

water experiments which we conducted to determine how a fish sees objects located below as well as above the surface.

After we had collected considerable data, one of my companions was struck by a sudden thought. "Say," he earnestly observed, "these experiments have been conducted from a fish's viewpoint, but not through the fish's eyes. How do we know that the fish sees as we do?"

The thought had also occurred to me, but so as not to let our work become a complete loss we assumed that the fish sees as we do under the same conditions. Accordingly, the color of a leader notwithstanding, viewed against the sky or a light background they all appear dark or opaque unless considerable light is reflected from the bottom, and the depth from which it is viewed is not too great. In reflected light and no undue surface disturbance, a faint suggestion of color may be discerned.

The very finest and most translucent leader can be seen while resting on a quiet surface. Even a gut that was sanded down to spider strand thinness was visible. This was not surprising since the footpads of the most delicate aquatic insects are readily discernible when viewed from below the surface. You, yourself, have observed the shadows cast on the bottom by the depressions made on the surface film by the feet of the water strider.

When a leader is viewed from its business end, *i.e.*, lengthwise, it is virtually invisible. It seems reasonable, then, to assume that if the fisherman does not drag it across current, the fish either does not see it or considers it of no consequence.

From the considerable mass of literature at my disposal it can be inferred that the horse hair leader once so popular in England (still used by some) was primarily employed because it facilitated the handling of small flies. If you are a fly fisherman and have never tried one you'll be amazed to see how delicately and smoothly even a No. 22 can be floated down to the surface. Indeed, a skillful angler can make the daintiest natural insect green with envy. Even a duffer can do a creditable job with a hair leader if he is not too clumsy with

his backcast. Incidentally, a good horse hair leader will sustain a dead weight of around six to eight ounces. With such a leader one who knows how to take advantage of the rod's resiliency can land a fish of some considerable size. White is the preferred color. Yes, it's the choice of even those who consider color in a leader of little or no importance.

Manufacturers of natural gut leaders have failed to establish a uniform standard in their product. All too frequently there is considerable variance in both diameter and weight-test in leaders which are similarly marked. This lack of uniformity is particularly noticeable in tapered leaders, the lengths of gut incorporated in the finished product by one manufacturer differing markedly from those used by another.

When delivered to the manufacturer, natural gut is notoriously irregular, each strand differing in both diameter and weight-test, the breaking point often ranging from between three and seventeen pounds. However, before the gut is made into leaders it is drawn through diamond dies to shave it down to the proper size. Obviously, with this control there should be no difficulty in achieving uniformity if the manufacturers would get together. It may be of interest to add that gut may be drawn to diameters of less than three-thousandths of an inch. These truly gossamer strands can stand a strain of but a few ounces.

The newest nylon leaders may be had in practically any lengths and they have the advantage of continuous uniform strength and suppleness even when dry. Also, nylon is slightly stronger than strands of natural gut of similar diameters. The pound-test of the various sizes of nylon follows:

	Pounds
0X	4 $\frac{1}{3}$
1X	3 $\frac{1}{2}$
2X	2 $\frac{1}{2}$
3X	2 $\frac{1}{4}$
4X	1 $\frac{3}{4}$
5X	1 $\frac{1}{4}$

Despite some of the obvious advantages of nylon, many expert anglers stick by natural gut since it sinks more readily than nylon

The PENNSYLVANIA ANGLER pays final tribute to a great friend, sportsman and leader, Dr. Clyde A. Mortimer, who passed across the Great Divide last year.

His influence, guidance and help in organized sportsmen's groups throughout the state will long be remembered. He was formerly the Secretary-Treasurer of the Pennsylvania Federation of Sportsmen's Clubs when it was originally organized several decades ago. Aside from many affiliations with the sportsmen of the Keystone state, he was very active in community civic affairs and at the time of death was director of the Honesdale Chamber of Commerce.



DR. CLYDE A. MORTIMER

and remains supple in icy water.

Regardless of your preference, if you want to transform an outing into an exciting fishing trip with the fish to prove it, simply slip a few feet of leader material between your line and hook.

LUCK

VERSUS

SKILL

(From Page 21)

"A type sample for the trade—a popular number for those who must consider price" . . .

There were ten of them, all told—de luxes, type samples and what not. His normal ascendancy over me was reestablished: the two to one ratio proved that all again was well with the world, recovery had set in, business was definitely on the upgrade, he could go home to his wife and children and look them in the face.

"It will look good in the record book," I ventured.

"No," he said, after a pause, "it won't. The record book was burned last night."

His luck was allergic to record books, he admitted.

Other fishermen's fortunes are sensitive to different species of pollen. Grass in the creel when starting out will put a pox upon

many an angler's day. Grass or ferns or moss—anything that anticipates a caught trout. That is a gesture of bravado or over-confidence, hence it incurs the disfavor of the Red Gods who expect and appreciate humility in their subjects. Tackle in the creel until the first trout is caught, and then the streamside ritual of transferring tackle to pockets and gathering damp vegetation for the bedding down of the kill, is much better. Such humble procedure will take you right into the hearts of the crimson imps who determine your sporting destinies. Indeed there are disciples so abject that they dare not go astream with a creel or with a landing net. A creel is perhaps insulting to the presiding deities: it puts you on record as taking for granted the capture of trout. A landing net is more so for it implies your anticipation not merely of trout but of large trout. But it seems to me that this salaaming and kowtowing could go too far. It might produce a devotee so groveling that he would not carry even a rod astream.

But there are other strange notions which are not concerned with humility before the gods, and these victimize not only the Caspar Milquetoasts of fishing but the strong, aggressive and opinionated practitioners as well. A trout hooked and netted on the first cast of the day is a universally accepted

token of failure to follow. Hours destitute of a strike are sure to ensue, or a good trout hooked and lost. This special superstition, one of the best liked of any, has its kin in other fields of human endeavor. Many a ball player is secretly or openly sad when his team wins its first game of the season, and some poker players will throw down three kings rather than open the first pot.

The idea that a trout cannot be caught under a bridge is a rather ordinary, first-reader superstition, shared by hundreds of mere beginners in witchcraft, including myself (as I have mentioned). I am a little ashamed that so obvious and popular a bugaboo has claimed me. Yet I find myself observing it in the majority of cases. If going up and over a bridge is easier than wading and casting through I will go up and over every time, no matter how troutish the dark water underneath. I simply do not catch trout under bridges.

Among the rarer superstitions are some which have no relatives elsewhere and which are traceable to no such simple origin as a desire to be humble before Nature. These are to be unearthed only by the most acute and persistent observation; it is probable that those few which have been surprised are but the minutest fraction of the swarms which are hatched in the secret dusks of the minds of fishermen. And not all of these are darkly precautionary against evil. Some are buoyant and positive, concerned with good luck only: the opportunity to exercise them is a rare piece of fortune while the lack is not inimical to good luck but merely neutral.

A fisherman—and a good one—once confided to me, while we ventured gingerly upon the edges of this hazardous terrain, that his sole and complete talisman was the finding of a trillium. This charm was so potent that his faith in it afforded him full release from the lesser taboos such as being wished luck, the carrying of a grassed creel and all similar folderol to which he had deferred in the days of his novitiate. It had to be an unexpected find. Looking for a trillium, even wandering near a spot where he thought they grew, had

no efficacy at all . . . He had stumbled upon a white one, once so very long ago that it would have died out of his memory except for the sequel. He had been approaching a favorite pool—a piece of water which had given up many a good trout but which, so far in that season, had yielded him nothing. This time, however, he hooked and landed a three-pound brown, the biggest fish of his career. The fact of the trillium had escaped his notice then; indeed it was only the strange habit of his mind to associate apparent trifles with matters of large import that recalled the incident, perfectly dove-tailed, the next time his eye caught the gleam of one of these blooms, tropically brilliant in a tangle of drab northern underbrush. That was years later (the trillium is a rare flower over what had been his fields of operation) but his mind flashed him the bygone hook-up with the three-pounder, still tops in his records after all these seasons. In the lip of a long pool just below—with the flower still visible

from where he made the cast—he snagged into another leviathan. In half an hour he had him in the net, in an hour on a butcher-store scales. Three pounds, again. This time the trillium had been a purple one: that proved the color definitely not a mitigating factor.

And that was not all . . . His voice had gone solemn and hushed, as if he were in a cathedral. It had worked a third time, this very morning. The bloom had been white again but the trout had been of the usual trillium-begotten proportions. See? He opened his over-large creel and unwound the monster for me to look upon. He needed no butcher store this time; from a pocket he produced a scales, hung the fish on it by the gills and held him up for me to witness the fulfillment of his miracle. Three pounds.

"Where is the trillium?" I asked, tastelessly.

"Oh, I never pick them," he said. "I look at them once—then look away. I try even to forget where I saw them . . . Say, you

won't mention this to a soul?"

And it is only in the pure spirit of scientific research, which should always supersede personal claims, that I give it to you here. Like all zealots, this chap had contrived an individual code of worship, had invested his deity with qualities which were only a projection of himself. He was no vulgar seeker of favors; he was humbly appreciative of such largess as had been bestowed, without asking for more. He tried to forget where the trilliums had been found. Manifestly, then, he never went back to one to see if it would work a second time. That would be asking too much of his god and conceivably might lose him his high apostolic privileges.

Practical men can see a kingfisher or a fish hawk pick a chub out of the shallows and think only that they have witnessed an interesting act of wild life. Others, properly steeped in the lore of sorcery, appreciate the great fortune implicit in this spectacle. These are not ornithologists, they are fishermen who believe in that particular cantrap. Having witnessed the kingfisher's kill they will go forth, fortified with something of the bird's professional ability, and catch themselves a mess of trout. This division of the lore, like most of the others, has its by-products, its meanderings from the central principle. A lone traveler over one of these most shadowy bypaths of the black arts is a chap of whom I have dark rumor if not actual acquaintance. This one will go to some pains to spy upon a heron catching frogs. If there is a heron-haunted pond or backwater within any reasonable distance of his stream he will give it a look, before fishing, just in case. This, of course, is downright perversion and has caused no small amount of eyebrow lifting among the more smug and respectable disciples of orthodox magic. He has been warned that trout fishermen should have no truck with frogs but he has a pat reply that neither should they have any truck with chub and dace, the natural prey of kingfishers.

It is hard to define where orthodoxy leaves off and heterodoxy begins. How do you place the



notion that the likelihood of heavy creels is enhanced by wearing a blue bow necktie with white polka dots, season after season, upon *all* of one's appearances astream? Or that parking your car on the left side of the road will bring about the same result? Or that fishing with a woman in the party, or indeed with a woman anywhere on the stream, is fatal to your chances? Are those notions accepted as sound, and if not, why?

But you must never question. The truly expert demonologists will tell you that you must never analyze nor attempt to find reasons, nor be intolerant of the other fellow's taboos and fetishes.

It is easy to remember what is pleasant to remember, easy to believe what is fascinating to believe, and to these very human frailties most of the legends of luck owe their vitality and longevity. The successes, the times when the charm worked, are remembered, but the times when it failed are forgotten. Fortune tellers owe such credence as they enjoy to the same quirk of human nature, the capacity to remember one prediction which came true and to forget ten that didn't. Quite likely, much fishing success which is ascribed to luck and to the workings of charms is more properly attributable to skill. Skill gets to be an old habit with some anglers. I know a few fishermen who have grown so accustomed to their extreme proficiency that they are unconscious of it; they wear it as they wear their fishing jackets, with never a thought to the fact that they've got it on, so comfortable and easy is its fit. With such men, days of outstanding success are often marked down to luck in one form or another. But the old unobtrusive skill was there all the time, functioning, making hard spots look easy, getting the most possible from each situation as it arose, dealing in its thorough manner with all the exigencies of many waters. Take away that high talent and substitute a mere mediocre performance—and I venture to say that a big percentage of what is termed luck would vanish as well.

All of which is not to imply that there is no such thing as luck in trout fishing. That there is such a

thing is fairly demonstrable of course, despite the contention of a few hardheads that it does not exist—in fishing or in any other activity. By trout fishing *luck* I mean a happening, over which there could be no human control which results or helps to result in a good fish caught or lost. A fine field lies open here to sophisticated meandering. The pasture bars are down but there is little need in going far inside . . . If half of your fly's hook breaks off midway in the battle with a two-pounder, you are going to lose that trout in a trice. The utmost skill in the handling of your gear will never bring *that* fish to net. It can be reasoned that you should have detected that hook's weakness beforehand and discarded it, but I think the raising of this point is unethical. A prudent fisherman frequently examines his leaders and lines but he takes the steel of his hooks for granted. If he looks at them now and then to make sure they are barbed and sharp that is all he can reasonably be expected to do. The loss of that fish is, I think, luck—of the rottenest kind. So is it luck when a sudden thunderstorm puts down a fine rise of trout in the only hour of the day you could give to fishing.

On unknown water I have the feeling that luck—good or bad, depending upon my success—is with me; on familiar streams, where I am dealing with known terrain and fairly well conjectured probabilities of trout, this feeling is minimized. Yet it is always present, in greater or less degree. It assumes importance in inverse proportion to the contents of my creel. Being shy of skill I am inclined to attribute a full creel to skill and an empty one to luck. A run of fishless days will have me believing that I am hexed, that almost every move I make has some unlucky significance. But in a spell of successful days astream—in that high tide which comes sometime in nearly every season—I can forget that such a thing as luck ever existed in fishing. Success begets confidence and confidence begets success—and that fine upward spiral is the best restorative of streamside sanity. It will scatter all the pixies and leprechauns beyond the reach of your farthest cast.

A GROWING number of anglers of this commonwealth are turning their attention to the relatively new hobby of building or assembling fishing rods. Certainly it is a rewarding pastime as evidenced by the fact many today are building two and three rods for themselves. Tackle dealers sensing this growing demand now carry the necessary parts required to complete a rod and sometimes entire kits are available. With the materials such as rod blanks, cork grips, ferrules and guides, the job of assembling such a rod can be accomplished in the garage or basement, completed within one or two evenings.

The finished rod itself will match the quality found in a medium priced rod and it is as economical to build a rod as it is a pleasure for these dormant winter months.

The operations of splitting, planing and gluing bamboo strips together in order to produce a rod joint are rather difficult, but these joints or blanks can be purchased ready for the accessories to be assembled on them. If there is a preference for glass fiber rod blanks, these are also available.

Two or three piece fly rods, bait casting, surf and spinning rods can all be built by the craftsman and one is no more difficult than the other to assemble.

Gluing the ferrules on the rod stick so they are anchored securely is by far the most tedious job and it might well be advised to first select a two piece rod such as a spinning rod for the first one.

The required materials for this rod are a butt and a tip section of either fiber glass or bamboo, a cork handle or roughly 30 individual cork rings, a set of six or seven guides graduated in size. In addition, a set of ferrules, ferrule cement, a set of reel bands, a spool of nylon thread and rod varnish are required for this rod.

Now the job is begun by sanding down the rod sticks and attaching the ferrules. Care should be taken so the ferrules require some pressure to push them in place, else they will not hold securely. If by chance the sticks have been sanded too small, ordinary cord string or fishing line can be held over the end and the ferrule forced on over this. The ferrules should be as near the diameter of the stick itself so that only a very little material need be removed from the bamboo. The strength of the rod lies in the fibers which appear just beneath the surface. If too many of these fibers are cut or sanded away, the rod will become weak at this point.

The second step in assembling this spinning rod is gluing the cork handle in place. In the event cork rings are used, glue each one with water proof cement tightly against one another. The first and last ring should be slightly larger in diameter to prevent the reel bands from sliding off the handle. Next, the guides are wound in place and spaced a graduated distance apart with the large butt guide roughly seventeen

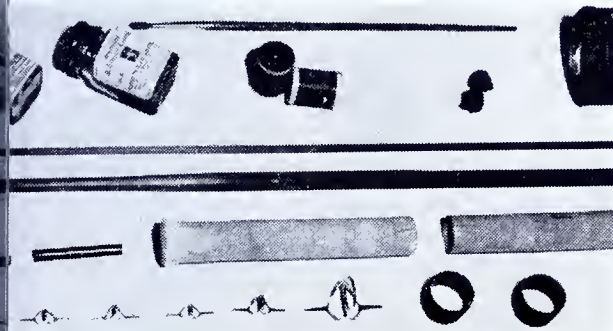
inches above the cork handle. Use nylon or silk thread for the wrapping and if the color is to be retained, apply some color preservative (clear lacquer) to the windings prior to varnishing the rod. Ordinarily the varnish will darken the thread.

Having built such a rod, you can feel quite proud of it and undoubtedly will build another, perhaps a three piece fly rod. This type rod is assembled in the same manner except a reel seat is used instead of the twelve or fifteen inch cork handle commonly found on the spinning rod.

— TACKLE TIPS —

“ASSEMBLING YOUR OWN FISHING ROD”

By Don Shiner

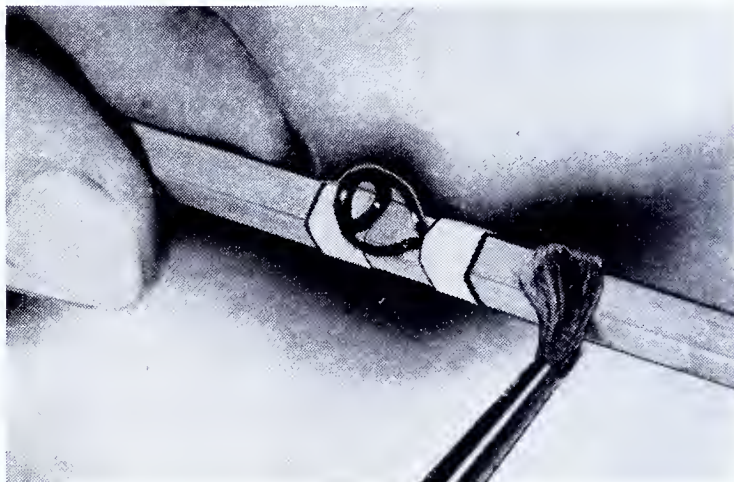


▲ Here are necessary materials for assembling a spinning rod: rod sticks, cork handles, reel bands, guides, ferrules, cement, glue, thread and varnish.

▼ ➤ When varnishing the rod, don't brush the varnish too much or it will become bubbly. Apply in long even strokes.

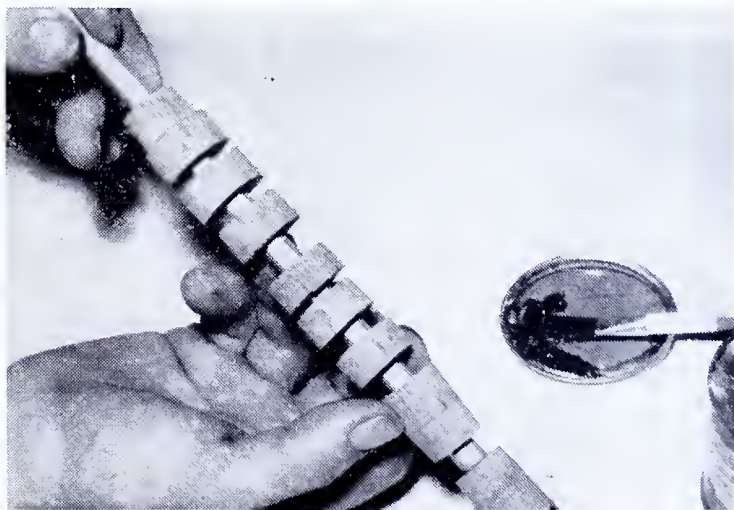


▲ Wind the first guide seventeen inches above the cork handle and the others space intermittently toward the tip.



➤ Here is the finished spinning rod. This rod assembled at home will match the rods found in the medium priced field in every respect.

▼ To make the cork handle on a fly or spinning rod, use individual cork rings and glue each tightly against one another with water proof glue.



FLY RODS IN AMERICA

(From Page 19)

Calcutta bamboo, however, is a difficult wood with which to work. As you probably know, the strength of the cane lies in the outer skin, the inner fibers being rather brittle and pithy. Thus, once the strips are cut and glued together no further work can be done on that section. Bamboo does not run uniform in quality. A Calcutta rod, no matter how carefully cut to pattern and assembled, does not necessarily conform to the desired action-pattern of the designer. It was for this reason that a really good fly rod, back in the early nineteen-hundreds, was regarded as a pearl without price by its fortunate owner.

It did not take the rod makers long to decide that Calcutta cane was not the last word in bamboo for rod construction. They tried other types of cane, eventually settling on Tonkin cane. This is indeed tough stuff. It comes from the Tonkin province of Indochina. The choice cane is grown on the wind-swept slopes facing the sea. The bamboo bushes are not allowed to become too large and the canes, tempered by the strong winds, are cut close to the ground when their lower ends are not more than two or three inches in diameter—hence the term “butt-cut” cane.

Tonkin cane, unlike Calcutta, has little or no strength in its outer skin, in fact the outer skin is a thin, brittle layer which is scraped off once the rod section has been assembled. Directly under this outer skin, however, is a rather thick layer of tough fiber, almost twice the thickness of that of a Calcutta stick of like diameter. Rod sections which have been glued up from strips of Tonkin cane actually can stand considerable “bench work” to alter the flexibility and make the section conform to “action-pattern.” Moreover, this bench work (which consists of sanding down or planing) does not seem to harm the finished product, always providing that it is not overdone. With Calcutta cane, which could not be altered after

gluing, it was almost impossible to duplicate a fly rod or, in fact, a section of a fly rod which had been broken. Today, working with Tonkin cane, a qualified rod maker can duplicate a rod action so that even the most practiced hand will have difficulty in choosing the original from the duplicate.

One of the earliest rod makers to build and sell split-bamboo rods commercially was Charles F. Murphy, of Newark, N. J. He learned the art from Phillippe, and it was he who originally supplied the famous tackle jobbing house, Andrew Clerk & Company of New York City (predecessors of Abbey and Imbrie), with their split-bamboo rods. These were sold throughout this country and also exported to Great Britain. This was in 1860. It is along about this time that the name Leonard comes into the picture. While I can find no documentary evidence to that effect, the probabilities are that Leonard learned his trade, at least in part, from Murphy.

With this new technique in rod building, the natural course of development and experimentation was in methods of strip assembly when setting up rod sections. The early rod builders tried combinations of various woods; they built round rods, square rods, even triangular rods of three strips to the section. Some of the rods by both Murphy and Leonard which were exported to England had as many as 12 strips to the section. It gives me quite a smile nowadays when some young salesman in a booth at the annual Sportsman's Show at Grand Central Palace, New York City, shows me “something new” in rod construction—four strip, five strip, laminated, or what have you. Shucks! Those early rod makers tried out all of those things way back in the eighteen sixties, seventies and eighties.

Boiling down all of these trial-and-error attempts to the absolute residue, the rod makers found that the hexagonal or six-strip rod not only was as easy as any to cut and assemble but it turned out better casting performance than other patterns. To be sure, from an engineering standpoint, the round rod is the ideal tool for precision casting. A flexible bar tends to bend

always against its shortest diameter. A round rod, having no shortest diameter, will bend equally well in any direction. Thus, the round rod is the ideal rod. However, to plane off the corners of a hexagonal rod to make it round means that much of the hard outside enamel of the cane must be removed and this, of course, weakens the rod, so they compromised by sanding off the corners of the hexagonal joints and letting it go at that.

It must be remembered that England was fairly well advanced in the art of fly fishing while America was still a young nation. Conditions on the trout streams of Great Britain, particularly on the chalk streams of the south of England, are radically different from conditions in America. Their streams are deep, comparatively slow-moving affairs, with little white water and plenty of water weed. For the most part, they are not wadable and casting must be done from the bank. The wind blows almost constantly and wind, as you know, tends to knock down your back cast, and this, all too often, results in unpleasant involvements with trees, bushes, and high weeds. Thus, the British angler wants a long rod, nine and a half, ten feet or longer. The extra length eliminates many back-cast difficulties along the chalk streams and allows the caster, who has no choice but to stand among high weeds and bushes, to handle his cast of flies more easily than he could with a shorter rod.

British rod tapers being rather well established, our rod makers worked along the same general lines and it was not until around the turn of the century that American rod makers began to develop their own tapers in the shorter lengths.

Probably the man who has left the deepest footprint in the sands of time, insofar as American rod making is concerned, is H. L. Leonard, original maker of the world-famous Leonard rod. When he learned his trade, rod tapers were pretty much cut to British fashion—long, slow-actioned affairs, all right for the purpose for which they were intended but not practical for American streams.

EXCERPTS FROM A RECENT MEETING OF THE PENNSYLVANIA FISH COMMISSION REVOCATION OF LICENSES

At a recent meeting of the Pennsylvania Fish Commission action was taken which certainly serve to impress the sportsmen of Pennsylvania that persistent violations will not be countenanced.

Pursuant to authority of the Pennsylvania Fish Commission contained in the Fish Laws of 1925, P. L. 448, as amended, the Pennsylvania Fish Commission has revoked the fishing privileges of the following persons and denied them the right to procure a license to fish anywhere in this Commonwealth until the expiration date effective until Dec. 1, 1952:

Altimus, Harry R., Belsano, Pa., Cambria.
Anthony, Harry L., Jr., R. D. No. 2, Reynoldsville, Pa., Jefferson.
Baker, Wayne P., 6 S. Center St., Bradford, Pa., McKean.
Barkley, John A., Fourth St., Renovo, Pa., Clinton.
Baustian, Raymond A., York, Pa., York.
Benjamin, Floyd, Towanda, Pa., Bradford.
Boone, Warren, East Waterford, Pa., Juniata.
Bower, Mark T., R. D. No. 1, Hawley, Pa., Wayne.
Burnosky, John W., Ginter, Pa., Clearfield.
Bush, Dilvan M., R. D. No. 2, E. Stroudsburg, Pa., Monroe.
Campbell, D. K., Mahaffey, Pa., Clearfield.
Case, William, Jr., Welcome Lake, Pa., Pike.
DePalma, Anthony G., 120 Oak Place, Fairhaven, N. J., Non-Resident.
Dexter, Percy, Welcome Lake, Pa., Pike.
Doran, Wilmer, Madera, Pa., Clearfield.
Ericson, Paul E., 110 Clinton Ave., Renovo, Pa., Clinton.
Espenshade, Harry, R. D. No. 1, Robeson, Pa., Berks.
Gates, Harold R., McConaugh St., Johnstown, Pa., Cambria.
Gette, Claude A., Sr., 407 Pine St., Philipsburg, Pa., Centre.
Halke, Urban J., 1100-B Cloverly Rd., Harrisburg, Pa., Dauphin.
Hartman, Carl, 2924 Locust Lane, Penbrook, Pa., Dauphin.
Hess, William, Three Springs, Pa., Huntingdon.
Hoffman, G. Frederick, 106 N. Front St., Philipsburg, Pa., Centre.
Homan, Frank O., R. D., State College, Pa., Centre.
Houser, James A., McConnells town, Pa., Huntingdon.
Margroum, Robert E., 211 Cooper Ave., Johnstown, Pa., Cambria.
Miller, Newell O., Spring Mills, Pa., Centre.
Myers, William, No. 1 Endlich St., Mt. Penn, Reading, Pa., Berks.
Perry, Wesley, 2517 Shawnee Ave., Scranton, Lackawanna.
Proper, Wm. E., R. D. No. 1, Grand Valley, Pa., Warren.

Putnam, Jessie, Box 513, Warren, Pa., Warren.

Putt, John, McConnells town, Pa., Huntingdon.

Quirk, Capt. Edward J., Olmstead Field Battery, Middletown, Pa., Dauphin.

Ragar, William H., Cramer, Pa., Indiana.

Richards, Geo. L., R. D. No. 3, Mercersburg, Pa., Franklin.

Romberger, Roy C., Tower City, Pa., Schuylkill.

Schoener, Basil G., School St., Galeton, Pa., Potter.

Sewell, Wm., Jr., Box 22, Wrights, Pa., McKean.

Smyers, Lloyd, Mt. Union, Pa., Huntingdon.

Snyder, Orman, Star Route, Renovo, Pa., Clinton.

Sobriski, Francis H., 1106 S. Irving Ave., Scranton, Pa., Lackawanna.

Spicer, T. S., State College, Pa., Centre.

Thompson, Thomas G., Star Route, Mill Creek, Pa., Huntingdon.

Watkin, Newton B., Three Springs, Pa., Huntingdon.

Westover, Jerry, Westover, Pa., Clearfield.

White, Thomas, Cedar Crest, Mt. Union, Pa., Huntingdon.

Whitecavage, Vincent P., Walnut St., Middleport, Pa., Schuylkill.

Woytek, Joe, Arcadia, Pa., Indiana.

Zimmerman, George, Fallen Timber, Pa., Cambria.

Zlogar, Marcella, 725 Main St., Bressler, Pa., Dauphin.

Under the provisions of the act cited any of these persons securing a license in his own or an assumed name prior to the expiration of the period given, will be liable to a penalty of \$25.00.

APPOINTMENT FOR STREAM ACQUISITION PROGRAM

Edward F. Westlake, Jr., who headed up the program on stream acquisition and lake purchases, is on a leave of absence as he is now in the Air Force where he holds a reserve commission.

At the last meeting, Cyril Regan, Pleasant Mount, was appointed to fill this position.

REDUCTION IN CREEL LIMIT OF TROUT

The Commission agreed for the year 1952 that the creel limit on trout in the inland water be reduced from ten to eight.

All persons violating this regulation shall upon conviction be sentenced to pay a fine as provided by law.

TWIN LAKES, PIKE COUNTY

The Commission prohibited the use of motor boats on Twin Lakes, Pike County, for the year 1952 with the exception of the motor boat owned and operated by

Camp Sagamore, which is used exclusively as a "crash" boat to rescue sailboats and canoes when they overturn, and for other emergency uses.

FIVE DAY POSTING OF TROUT STREAMS

Agreement by the Commission provides that in the future where requests are made streams stocked with trout during mid-season be opened at 12:01 p.m., E.S.T.

The distribution center at Bellefonte will contact all organizations, associations, and individuals requesting the closing of streams during mid-season stocking and develop a plan which will be uniform.

SCHUYLKILL CANAL

The Department of Forests and Waters turned over to the Commission a section of the Schuylkill Canal for fishing purposes. The section is approximately one mile long and is located opposite the town of Berne, Pa.

RULES AND REGULATIONS GOVERNING THE OPERATION OF MOTOR BOATS ON ALL INLAND WATERS

Rules and regulations for the operation of motor boats on all inland waters both public and private, were reestablished by the Commission. Special regulations on the Pymatuning Lake provide that motor boats of not more than six (6) horse-power are now permitted in that portion of Pymatuning Lake extending from the main dam near Jamestown, northwardly to the causeway at or near Espyville. No boat shall be permitted on the lake within three hundred (300) feet of the dam.

Persons under sixteen (16) years of age are prohibited from operating boats equipped with motors on Pymatuning Lake.

PURCHASE OF TRUCKS

The Commission authorized the purchase of seven new trucks for its fleet now maintained and used for the distribution of fish.

NEW WARDENS

The following new fish wardens were appointed:

Anthony Discavage, 168 S. Water St., Kittanning, Penna., Armstrong County.

Andrew Meholic, 510 3rd Ave., Johnstown, Penna., Elk County.

NURSERY WATERS

The trout nursery project of the Bald Eagle Sportsmen's Association, Northwood, Tyrone, Penna., was set aside as a nursery for a period of one year. This project consists of one pond located in Snyder Township, Blair County.



KNEELING LEFT TO RIGHT: W. W. Britton, K. G. Corey, C. R. Suller, C. A. French, Anthony Discavage, Andrew Meholic, Jacob Knisley, E. R. Stachhouse, R. M. Betts.
 SECOND ROW: B. R. Brooks, Clifton Iman, L. C. Ogden, B. M. Carnelli, W. E. McIlroy, S. C. Sheldon, L. E. Cloos, S. F. Henderson, J. S. Ogden, H. D. Neff, A. L. Walker, D. R. Davis, Floyd Bachman, R. O. Singer.
 THIRD ROW: Keith Harter, C. W. Shearer, M. C. Jones, H. A. Pyle, C. V. Long, E. F. Barnhart, Wilbur Williams, Julius Ahrens, Rayel Hill, R. C. Bailey, C. B. Baughman, Bert Euliano, N. W. Sickles, R. J. Bielo, H. F. Reynolds, P. D. Wilcox.
 FOURTH ROW: Kenneth Aley, A. J. Lech, N. L. Blum, Charles Iltwhiler, G. W. Cross, Harold Corbin, David Dahlgren, L. E. Close, G. M. Noll, J. E. Banning, J. A. Schadt, C. A. Bidelspacher.

STATE WARDENS, FISH COMMISSION OFFICIALS AT REFRESHER SCHOOL HELD RECENTLY AT BELLEFONTE

HEADS DIVISION OF LAND AND WATER ACQUISITION



Cyril G. Regan

The Pennsylvania Fish Commission has selected with pride Mr. Cyril G. Regan for promotion as Chief of the Division of Land and Water Acquisition.

Mr. Regan has been in the employment of the Pennsylvania Fish Commission for the past sixteen years and has taken an active part in operating the State Fish Hatchery at Pleasant Mount, Wayne County. He is married and has three children and maintains his residence at Pleasant Mount.

Cy, as he is called by his many friends, served three years in the Army Air Corps, and has proven

to be outstanding in his work with the Fish Commission.

For the present Mr. Regan's headquarters will be at the State Fish Hatchery, Pleasant Mount, Pennsylvania.

The important part of his work will be the acquiring of land on

an easement basis along streams in Pennsylvania. Also, of vital importance to this program headed by Mr. Regan is the acquiring of lakes for use by the Pennsylvania Fish Commission Management Unit for creating better fishing in areas that do not have abundant fishing waters.

RESOLUTIONS ON FISH APPROVED BY THE PENNSYLVANIA FEDERATION OF SPORTSMEN'S CLUBS AS RECOMMENDED TO THE FISH COMMISSION

1. RESOLVED, That the daily limit on trout be changed from ten to eight. Approved. The Commission has established this and the new daily limit of eight trout will be in effect in 1952.

2. BE IT RESOLVED, That the Pennsylvania Fish Commission disapprove any applications to the Federal hatcheries for fish to be stocked in waters not open to public fishing excluding farm ponds.

The Commission will take this matter up with the Fish and Wildlife Service and endeavor to work out a program which will tie in with this resolution.

3. WHEREAS, The fishing regulations applying to wall-eyed pike in that portion of the Delaware River between Pennsylvania and New York state has provided good winter fishing and has not depleted the supply, THEREFORE BE IT RESOLVED, That the Pennsylvania Fish Commission consider the adoption of the same

regulations for that portion of the Delaware River between Pennsylvania and New Jersey.

Approved in principle. The Commission will take this up with the New Jersey Department of Conservation to determine if they will agree to an amendment.

4. WHEREAS, The Pennsylvania Game Commission has been very successful in having Sportsmen's organizations and land owners raise pheasant from the day old chick stage by providing part of the cost as an incentive, now THEREFORE BE IT RESOLVED, That the Pennsylvania Fish Commission investigate and study the possibilities of a similar program for the raising of fish from the fingerling stage even if on a considerably smaller proportion of the known cost of raising such fingerlings to a stocking size.

A study will be made of the feasibility

of co-operating with clubs raising fish from fingerling to stocking size.

5. **RESOLVED**, That the State Federation petition the Department of Revenue to issue fishing licenses that are of more durable quality and that will not fall apart like those issued in 1951.

Approved.

6. **WHEREAS**, There has been a dam on Brokenstraw Creek at Columbus, Penna., for over one hundred years, until the Spring of 1947 when a portion of said dam washed out, and **WHEREAS**, The repairing of said dam is desired by the majority of the citizens of Columbus Township and **WHEREAS**, The lake created by said dam did and would again carry a good supply of game fish,

THEREFORE BE IT RESOLVED, That the N. W. Division appeal to the Pennsylvania Fish Commission to join with the citizens of Columbus, Pennsylvania, in paying for the repair of Columbus Dam to again create the 50-acre lake for the enjoyment of residents and non-residents alike.

Approved. The Commission Engineer was authorized to go ahead under regular procedure and secure bids for the repairing of Columbus Dam.

7. **WHEREAS**, The Lamprey is increasing in large numbers in the inland waters of the Commonwealth, and **WHEREAS**, The Lamprey is a deadly enemy to certain species of fish and especially trout, and

WHEREAS, The Lamprey is being spread to inland waters by fishermen using them as fish bait,

THEREFORE BE IT RESOLVED, That the Federation of Sportsmen's Clubs be petitioned to support legislation which would make it unlawful to transport, sell, or use lamprey as fish bait in the inland waters of the Commonwealth.

The Fish Commission will cooperate with the Federation of Sportsmen's Clubs in supporting any legislation making it unlawful to transport, sell, or use lamprey eels as fish bait in any inland waters of the Commonwealth.

8. **WHEREAS**, There are frequent accidents in Pennsylvania waters resulting in loss of lives and property, many of which are caused by, or directly traceable to, faulty boats or equipment furnished by boat liveries, and

WHEREAS, Many such boat liveries take absolutely no safety measures, and furnish no safety equipment, and **WHEREAS**, Many boats rented by liveries are unsafe to use, and

WHEREAS, In some accident cases if a motor boat had been available at the dock for rescue work, lives would have been saved,

THEREFORE BE IT RESOLVED, That the PFSC petition the Pennsylvania Fish Commission to take appropriate action to have all boats and equipment for rental purposes be subjected to periodical inspections and that

minimum safety requirements be set up, such requirements to include a motor boat available for emergency use at all liveries having a minimum number of boats for hire. Minimum number of boats at liveries coming under this resolution to be set up by the Fish Commission.

The Fish Commission endorses this

resolution 100 per cent but have been advised that to put it in operation would require additional Legislation as at present we have no control over rowboats which are not operated by either an in-board or outboard motor. The Commission feels that many of the boat liveries would be glad to cooperate with this proposal.

Pennsylvania Fish Law Violations

CASES SETTLED DURING THE MONTH OF NOVEMBER 1951

ALLEGHENY COUNTY

Archey, Wm., 310 Sandusky St., Pittsburgh, Pa. Fishing without displaying button \$25.00
Dybowski, Mary, 54 Bates St., Pittsburgh, Pa. Fishing without a license 25.00
Forster, George, 406 6th St., McKeesport, Pa. Exceeding creel limit 10.00
Kushnew, Stanley, 345 Colfax St., Springdale, Pa. Motor boat violations 5.00
Myers, Genevieve, Renton, Pa. Fishing without a license 25.00
Sloss, Raymond, 103 Glenney Lane, Duquesne, Pa. Exceeding creel limit .. 20.00
Thomas, Alexandria, 305 Overhill Drive, McKeesport, Pa. Failure to display license plates 10.00

ARMSTRONG COUNTY

Ross, John W., 416 N. 6th St., Apollo, Pa. Exceeding creel limit 10.00

BEDFORD COUNTY

Bowers, Melvin, R. F. D. No. 1, New Enterprise, Pa. One undersized bass 10.00

BERKS COUNTY

Huey, Oscar, Mohrsville, Pa. Exceeding creel limit 40.00
Simmons, John, 1310 Delaware Ave., Wyomissing, Pa. Exceeding creel limit 20.00

BLAIR COUNTY

Estep, Walter, Box 24, R. D. No. 2, Altoona, Pa. Fishing without a license 25.00
George, John J., 1212 8th St., Altoona, Pa. Failure to display license plates 5.00
McGraw, James W., 2109 7th Ave., Altoona, Pa. Fishing without a license 25.00
Norton, Benjamin H., Box 259, R. D. No. 2, Altoona, Pa. Failure to display license plates 5.00

CHESTER COUNTY

Sopher, George, 11 S. 3rd St., Oxford, Pa. One undersized pickerel 10.00

CLINTON COUNTY

Dietz, Carson, 636 E. Water St., Lock Haven, Pa. Preventing the migration of fish in Fishing Creek 100.00

COLUMBIA COUNTY

Coleman, Arden, Bloomsburg, Pa. Exceeding creel limit 20.00

DAUPHIN COUNTY

Lehman, Edward, Middletown, Pa. Exceeding creel limit 10.00

DELAWARE COUNTY

Kodadek, Frank, 7286 Lamport Rd., Upper Darby, Pa. Exceeding creel limit 20.00
Mills, Ethelbert H., 126 E. Cook Ave., Glenolden, Pa. Exceeding creel limit 20.00
Neil, George, Jr., 4315 Cedar Lane, Drexel Hill, Pa. Fishing without a license 25.00
Will, Daniel C., 4315 Cedar Lane, Drexel Hill, Pa. Loaning a fishing license 25.00

ERIE COUNTY

Kazimierz, Sumak, 433 E. 5th St., Erie, Pa. Unnaturalized foreigner fishing without a license 20.00
Miller, Edward, 531 E. 6th St., Erie, Pa. Issuing a fishing license to unnaturalized foreigner 100.00
Prindle, Arthur, 2406 Holland St., Erie, Pa. Fishing without a license 25.00
Przyselek, Witold, 433 E. 5th St., Erie, Pa. Unnaturalized foreigner giving false information to obtain a fishing license 20.00
Schwartz, Gustav, 433 E. 5th St., Erie, Pa. Unnaturalized foreigner giving false information to obtain a fishing license 20.00

LANCASTER COUNTY

Smith, Edmund J., 107 S. Ninth St., Columbia, Pa. Illegal operation of motor boat 25.00

LAWRENCE COUNTY

Melzer, Alfred, 1101 Wayne Ave., Ellwood City, Pa. Motor boat violation 5.00

LEBANON COUNTY

Genetto, Alexander, 715 Glenwood Ave., Lebanon, Pa. Exceeding creel limit 30.00

LUZERNE COUNTY

Geguzis, John, 357 E. Grand St., Nanticoke, Pa. One undersized pike 10.00
Hudzik, Lewis, 245 W. Union St., Nanticoke, Pa. Exceeding creel limit .. 30.00
Kaczmarczyk, Alexander, 233 Bauer St., Askam, Pa. Exceeding creel limit 20.00
Kasarda, George, 21 Allen St., Luzerne, Pa. Exceeding creel limit .. 10.00
Koval, Joseph M., 18½ Culver St., Forty Fort, Pa. One undersized pickerel 10.00
Maszeroski, Daniel, 402 N. River St., Duryea, Pa. Illegal device 20.00
Sadowski, Joseph, 164 Line St., Nanticoke, Pa. Exceeding creel limit 30.00

LYCOMING COUNTY

Birdsell, Clarence, 60 N. Main St., Hughesville, Pa. Exceeding creel limit 100.00

MONROE COUNTY

Fish, Paul, 10 Rose St., East Stroudsburg, Pa. Three trout in closed season 30.00

MONTGOMERY COUNTY

Basco, Alfred J., 150 N. 1st Ave., Conshohocken, Pa. Exceeding creel limit 20.00

NORTHUMBERLAND COUNTY

Geistwite, Edward, 82 Montour St., Milton, Pa. Fishing in a closed stream 25.00
Hepler, Grace C., R. D. No. 1, Shamokin, Pa. Catching fish with her hands 20.00

PHILADELPHIA COUNTY

Dransfield, J. Wesley, 5440 Rldge Ave., Philadelphia, Pa. Exceeding creel limit 20.00
Durnan, Edward, 2503 S. Camac St., Philadelphia, Pa. Exceeding creel limit 20.00
Goldfarb, Leo, 4043 Baltimore Ave., Philadelphia, Pa. Exceeding creel limit 10.00
Inman, Jessie, 1514 S. 49th St., Philadelphia, Pa. Exceeding creel limit 20.00
Jarrett, Wilbur, 1827 N. 28th St., Philadelphia, Pa. Exceeding creel limit 20.00
Norton, Joseph E., 368 Dawson St., Manayunk, Philadelphia, Pa. Exceeding creel limit 20.00
Spitler, Wm., 660 Wendover St., Philadelphia, Pa. Exceeding creel limit .. 20.00
Wilson, James, 5206 Ridge Ave., Philadelphia, Pa. Exceeding creel limit 20.00

SCHUYLKILL COUNTY

Slutcavage, Frank, 258 S. Wylom St., Frackville, Pa. Illegal device 20.00

SOMERSET COUNTY

Chelednik, Frank, Main St., Central City, Pa. Five undersized trout ... 50.00

WESTMORELAND COUNTY

Hutchison, George, Box 208, New Florence, Pa. One undersized trout 10.00

WYOMING COUNTY

Pennsworth, Fred, Laceyville, Pa. Operating a motorboat without lights thereon 5.00

YORK COUNTY

Ferre, Spurgeon, Jacobus, Pa. Exceeding creel limit 20.00
Hughes, Robert, 727 S. George St., York, Pa. Illegal device 20.00
Myers, Laurence, Route No. 1, Windsor, Pa. Exceeding creel limit 20.00
Wambaugh, Charles, Henryetta St., Red Lion, Pa. Exceeding creel limit 30.00



Water is so commonplace that most of us just take it for granted. It is the commonest liquid about us in summer. In winter it assumes many forms and often changes the everyday world into something out of the Arabian Nights. Only, if one has to travel (other than by snowshoes or skis) he fails to see the beauty because water in its more solid forms makes transportation often too hazardous for comfort.

Water in some form is ever around us. It makes life possible. An endless water cycle has been going on since the cooling off time of the earth. Great amounts of water evaporate from the ocean and in the form of vapor is carried inland. In summer you may be aware of it as rain, fog, dew, or mist. But ultimately, in one form or another, it comes to earth and changes to flowing water which follows gravity by the way of rills, creeks, and rivers back to the ocean again.

In January we may see frozen water in many forms. All of them are beautiful to contemplate through a picture window, although the view of the skier may be extremely different from that of the motorist who finds appreciation difficult. Let's consider some common forms taken by water in winter.

SNOW

Snow was made for sleds, cutters, sleighs, toboggans, snowshoes, and skis. Scientists tell us that snow crystals are formed high above the earth from water vapor. All snowflakes are 6-sided, and they come in a bewildering assortment of patterns. A college friend of mine made enlargements of hundreds of

WATER IN WINTER

photographs of snowflakes and found no two alike. The forms are best seen against a dark cloth when snow is just beginning to fall and when the air is calm. In a snow storm the flakes are apt to be damaged.

Pennsylvania receives more snow than do the mid-western states but far less than the Pacific coast states. In our state we usually have from 50 to 100 inches of snow a year. In the Sierra Nevada Mountains of California, 400 inches of snow is not unusual, and at a gauging station on the south slopes of Mt. Rainier in Washington, 790 inches were recorded.

Deep snows provide a more gradual run-off than do heavy rains. There is less erosion. Farmers welcome a snow cover for it prevents sudden freezing and thawing that heave up and injure crops like winter wheat.

FROST

When water vapor in the air strikes objects that are below the freezing temperature, they are transformed to glistening things with ice crystals reflecting light everywhere. Grass, shrubs, telephone wires, trees—everything is transformed to feathery loveliness. Jack Frost is a rapid artist as one's breath on a cold window pane will prove.

RIME

When a fog drifts along on an winter wind, the windward side of trees, telephone poles, and other obstructions will bristle with long ice crystals. These may be inches thick on one side and without crystals on the other side. When the sun strikes the object, it blazes like millions of rhinestones. But its beauty is fleeting; a little heat is enough to ruin its splendor.

GLAZE AND SLEET

Glaze is rain that freezes upon touching cold, solid objects, it forms a smooth icy coat on the ground, or on roots, fences, trees, and telephone wires. The weight of the ice may do severe damage when it breaks wires and branches.

When cold rain or partially melted snow freezes before it strikes the earth, the icy rattling forms are called sleet. Often glaze and sleet occur together.

HAIL

Ice pellets that fall, usually in the summer, are called hail. These hail storms are often of short duration and usually accompany thunder storms. It is believed that the wet hail stones are

carried by rising air currents again and again into the stratosphere so that layer upon layer of ice is built around the growing pellet. Finally the stone becomes too heavy, and gravity sends it crashing to earth. Often considerable damage to fruit and grain crops, and even to animals, is reported. Hail as large as a goose's egg and weighing as much as eight ounces is not uncommon.

ICE

Each winter we look forward to the freezing of our favorite skating rink. It may be a river, lake, or pond, and we "test the ice" to see if it will hold. The other forms we have described are frozen water vapor; ice is just frozen water. It is a brittle solid which increases its bulk 9% when it changes from water to ice. This increase is sudden and often results in the bursting of pipes and radiators when the drop in temperature comes unexpectedly.

Chuck, the Warden, Says:

Water is one of our natural resources which we often overlook. Fortunately it renews itself over and over again. But man must realize that water must be conserved. If water from rainfall is permitted to dash back to the sea, carrying with it precious topsoil, then only irreparable harm is done. But if with forests and grass lands we can hold back the water so that it will sink into the earth, then it becomes a part of the water table. The water table in many parts of our country has fallen dangerously low. Only by replanting the watersheds can we build up our reservoir of underground water which is so essential to the prosperity of our nation.





*(Illustrations through the courtesy of
Canadian National Railways)*





PENNSYLVANIA

Angler



FEBRUARY
1952



NO FISHING ALLOWED:—AND THAT GOES FOR FISHERMEN TOO, IN ANY PENNSYLVANIA WATERS

from MIDNIGHT, MARCH 14 to 5 A.M. APRIL 15

Except in Rivers, Lakes or Ponds Not Stocked with Trout!

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OF TROUT
FOR 1952
SEASON
OPENING AT
5 A.M.
APRIL 15

IS



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DAY'S
CREEL
LIMIT
OF TROUT
FOR 1952
SEASON
OPENING AT
5 A.M.
APRIL 15

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PENNSYLVANIA**

HON. JOHN S. FINE
GOVERNOR

*

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PENNSYLVANIA
Angler

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FEBRUARY—1952

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The Cover . . .

FLY TYING—favorite indoor winter sport for anglers. Son watches Dad wield scissors and hackle pliers just itching to get into the act. More and more fly fishermen are getting a real thrill and satisfaction from tying their own.

Cover and back cover photos by Don Shiner



George W. Forrest, Editor

1339 East Philadelphia Street, York, Pa.

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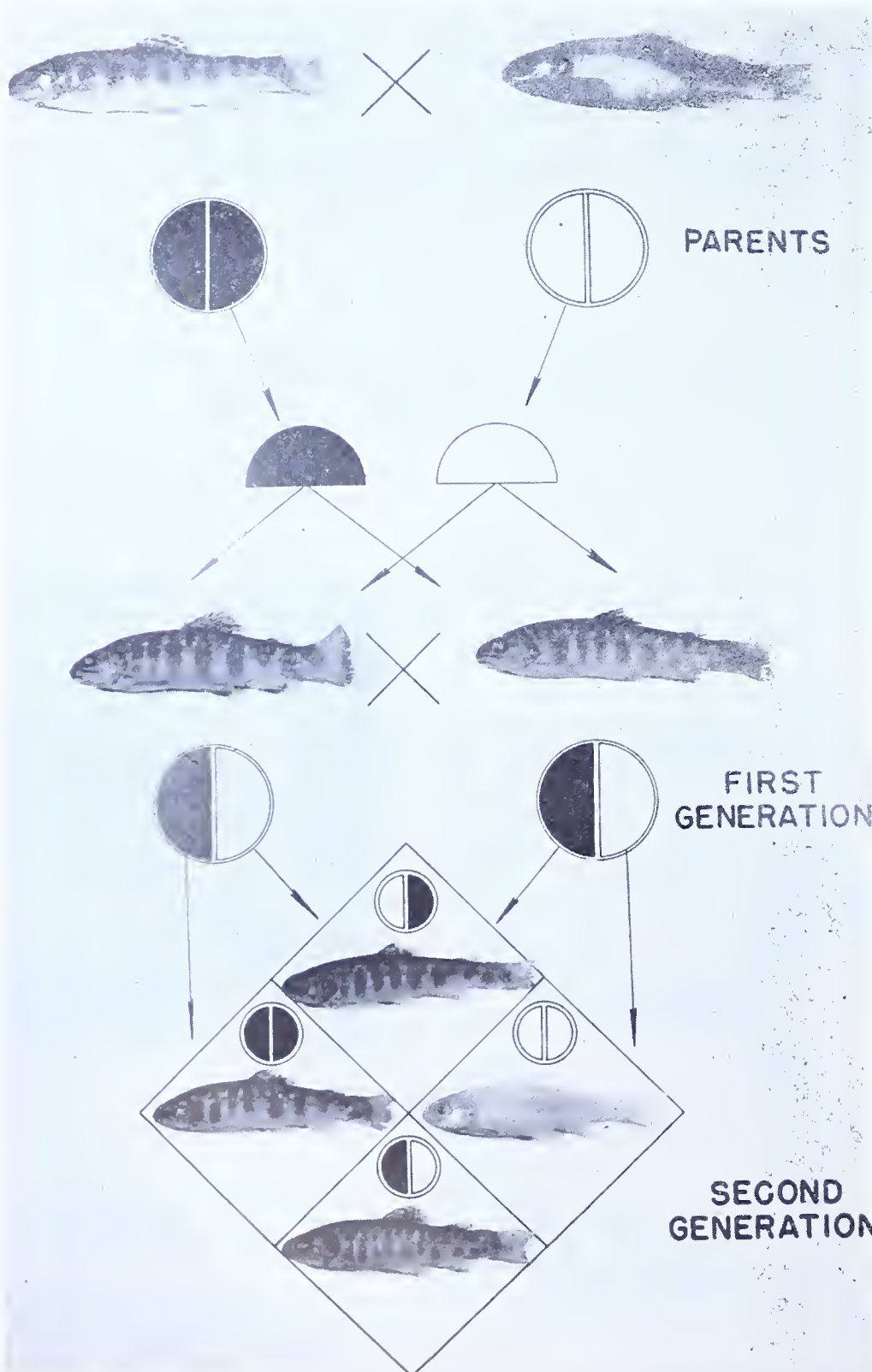
GENETICS

and trout breeding

By JAMES E. WRIGHT, JR.

Assistant Professor of Genetics, The Pennsylvania State College

Illustrations by George H. Gordon—Official Photographer,
Pennsylvania Fish Commission



IN ORDER to understand better how the application of genetic methods to trout breeding should lead to further improvement in trout brood stocks, a knowledge of certain principles of genetics is necessary. Let us now develop in an elementary fashion some of these principles as they would apply to trout. From the discussion certain breeding principles can be outlined.

One of the few characteristics in trout about which the pattern of inheritance is known is albinism in brook trout. This characteristic can serve as an example to illustrate some basic principles of genetics. The pattern of inheritance of albinism versus normal coloration in brook trout is illustrated diagrammatically in Figure I. If a true-breeding normally-colored trout (that is, with no albinism in its ancestry) is crossed with an albino, all of the first generation offspring will be normally-pigmented. If a male and female of these offspring are now mated, the resulting offspring in the second generation occur in the approximate proportions of $\frac{3}{4}$ normally-colored to $\frac{1}{4}$ albinos. These results would occur whether we used a male or a female albino in our original mating. From these results a geneticist knows that the difference between albinism and normal coloration is due to different forms of a single gene (a basic unit of inheritance).

To explain these regular results certain basic principles of behavior of these forms of the "color" gene are illustrated in the diagram. The gene is represented by a semi-circle with the two forms colored appropriately. The gene occurs in pairs in the individual fish but occurs singly in an egg or a sperm. Thus the first generation offspring are formed by fertilizing eggs containing a single "colored" form of

◀ Fig I—The inheritance of albinism in brook trout. (Explanation in text.)

the gene (if the female parent were normally colored) with sperm containing a single "albino" form. These offspring are all colored because the colored form of the gene is completely *dominant* to that for albinism. We say, then, that the albino form is *recessive*.

When the first generation trout reach sexual maturity, they produce two kinds of eggs and two kinds of sperm with respect to the gene for coloration—those containing the color form and those containing the albino form. These two kinds of eggs or sperm are formed in equal numbers. Now, fertilization of a color-producing egg can be effected with either a color-producing or an albino-producing sperm. The same is true for any egg containing the albino form of the gene. Fertilization, then, is strictly at random and this randomness results in the four possible ways that these eggs and sperm may be united as illustrated. This accounts for the second generation offspring appearing in the proportions of $\frac{3}{4}$ colored to $\frac{1}{4}$ albino.

Just how would this type of fundamental genetic knowledge be applied to a practical breeding program? Now let us suppose that we wanted nothing but albino brook trout. By breeding albinos with albinos nothing but albinos would appear in the offspring since

albino individuals can transmit *only* albino genes to these offspring. (Clearly, there could be no "color" genes transmitted by an albino parent for if that parent had had any dominant "color" genes it would not have been an albino.)

On the other hand, in an improved strain of brook trout we should want no albino offspring to arise. Now our breeding procedures become a bit more complicated. Even by selecting only colored individuals as parents we see that some albinos may be produced. This would occur whenever fish of similar genetic constitution to those of the first generation offspring in our diagram are mated. (We speak of these impure individuals as being *heterozygous*.) In order to reduce the frequency of albinism, then, we could mate two individual fish, keep their offspring separate from all others, and then eliminate as future breeders all those lots of fish, together with their parents, in which albinism appears.

But even this procedure would not positively eliminate albinism. Chances are great that one might mate some heterozygous fish (those carrying hidden "albino" genes) with fish having nothing but "color" genes. All of their offspring would then appear normally-colored because the latter

parent transmits nothing but dominant genes for normal coloration. We would then be keeping as future breeders males and females which were impure for normal coloration simply because we could not establish their genetic constitution. This explains the fact that albinism crops up from time to time among hatchery trout. Similarly, it is now apparent why great variation exists for various other characteristics in our hatchery stocks after long periods of mass selection and random mating of breeders.

There is, however, one way in which we could positively identify and subsequently eliminate any fish which carries hidden "albino" genes. By mating all proposed future breeders with albinos, we could eliminate those trout among whose offspring there were albinos. The reader can verify this by recalling that a heterozygous colored trout produces eggs or sperm of which one half carry the gene for color and one half the gene for albinism. Fertilization with sperm or eggs which carry the albino gene would result in $\frac{1}{2}$ of the offspring being albino and $\frac{1}{2}$ of them colored. And what about these latter colored offspring? Of course, they received an albino gene from one parent and would therefore be heterozygous and unfit as future

▼ Fig 11—Variations in coloration and markings in brook trout fingerlings receiving a diet of *Daphnia magna*.



breeders. Thus this generation of offspring would serve only as a means of selecting their parents as breeders.

The above discussion of albinism may have seemed complicated. Actually this would be one of the simplest of characters to be dealt with. Suppose albinism (the absence of color) were eliminated from our stocks. What color the colored fish would be is then determined by other genes. Brook trout may be all shades of brown or green. The inheritance of this coloration difference is not known but we should be able to determine this in the future by inspection of pedigrees through several generations of offspring. The information could then be applied appropriately.

There is another pattern of behavior of two forms of a single gene that might arise in trout breeding. This is referred to by geneticists as *intermediate* inheritance, or the lack of a dominant-recessive relationship. Since no such condition is known in trout, we shall use an example of incidental interest to anglers. That is the case of the Blue Andalusian chicken, the necks of which are much in demand by fly-tyers. The blue coloration of this breed is due to the presence in an individual of two forms of a color gene, neither being dominant to the other. Blue Andalusians never breed true simply because of this heterozygous condition. When crossed together they yield black, blue, and white splashed offspring in the respective proportions of $\frac{1}{4}$ to $\frac{1}{2}$ to $\frac{1}{4}$. Reference to the diagram in Figure I should explain this result. We may substitute the black and the splashed white chickens for the two parent fish. The first generation offspring would all be blue and the second generation would occur in the 1:2:1 ratio cited above.

A desirable characteristic in trout might behave similarly in inheritance. By maintaining the two different true-breeding parent stocks as brood fish we would be able to produce only trout with this heterozygous desirable character to be stocked into streams. Incidentally, many poultrymen and



chicken fanciers, unaware of the genetics of blue coloration, still discard the black and the white splashed chickens as breeders and use only blues mated with blues.

Only the simplest forms of inheritance have been used in illustrating how genetic knowledge might be applied to trout breeding. Actually, in developing a desirable strain of trout, we would deal simultaneously with a number of characteristics similar to the above. Characteristics from some individuals would be shuffled with characteristics from other individuals to combine them into one group of individuals with a high number of desirable characteristics. The basic laws of genetics cited above still hold in this shuffle, although the compilation of records and subsequent selection of breeders becomes increasingly complicated. This is because the 3 to 1 proportions (or segregation) resulting from one gene difference would be superimposed upon the 3 to 1 or the 1 to 2 to 1 segregation of other gene differences. Thus all combinations of the desirable and the less desirable characters determined in inheritance by different genes would occur in a segregating population. These combinations would occur in definite proportions again, however.

We have also purposely dealt with characteristics which might be classified as *discontinuous* ones. That is, trout may be colored or albino; chickens may be black, blue or white; or trout may be shades of green or brown in color. These kinds of characters might be the only ones to be dealt with in producing superior body-form and

coloration in a strain of trout. The kind of environment under which the trout are grown plays only an incidental role in one's ability to classify these characteristics each into two or three distinct classes. In this connection, let us illustrate at this point how an environmental factor might be used to bring out genetic differences of these sorts which would not otherwise be apparent.

An experiment was conducted at the Bellefonte hatchery in which a number of brook trout fingerlings were fed nothing but *Daphnia magna*, a water crustacean used for feeding young warm-water fish such as bass. After several weeks most of these fingerlings became as brilliantly colored as any wild brookie one ever saw. Yet after two months on this diet some individuals failed to develop any red spotting on their sides and very little red coloration of the fins and stomach. Some of the differences obtained in coloration and markings of these fish are shown in Figure II. These results would indicate that the ability or inability to develop the more desirable coloration and markings on this diet is hereditary. Thus, only under conditions of simulated natural diet would one be able to select strains of brook trout which could develop brilliant coloration when stocked into streams.

Many characteristics fall into a group known as *continuous* ones. That is, one cannot separate individuals into two or three clear-cut classes with respect to these characteristics but rather they fall into many small, continuously intergrading ones. Such characters as size and egg production in trout would certainly come under this group. Moreover, most of the economically important traits in domestic animals and plants are included here. It is apparent that environment contributes a great deal toward variations in such characters. But we also know that they have an hereditary basis. There is ample evidence that these characters are controlled in inheritance by a series of many different genes which are cumulative in their effects. For this reason it is difficult, if not impossible, to pick out the effects of single genes to

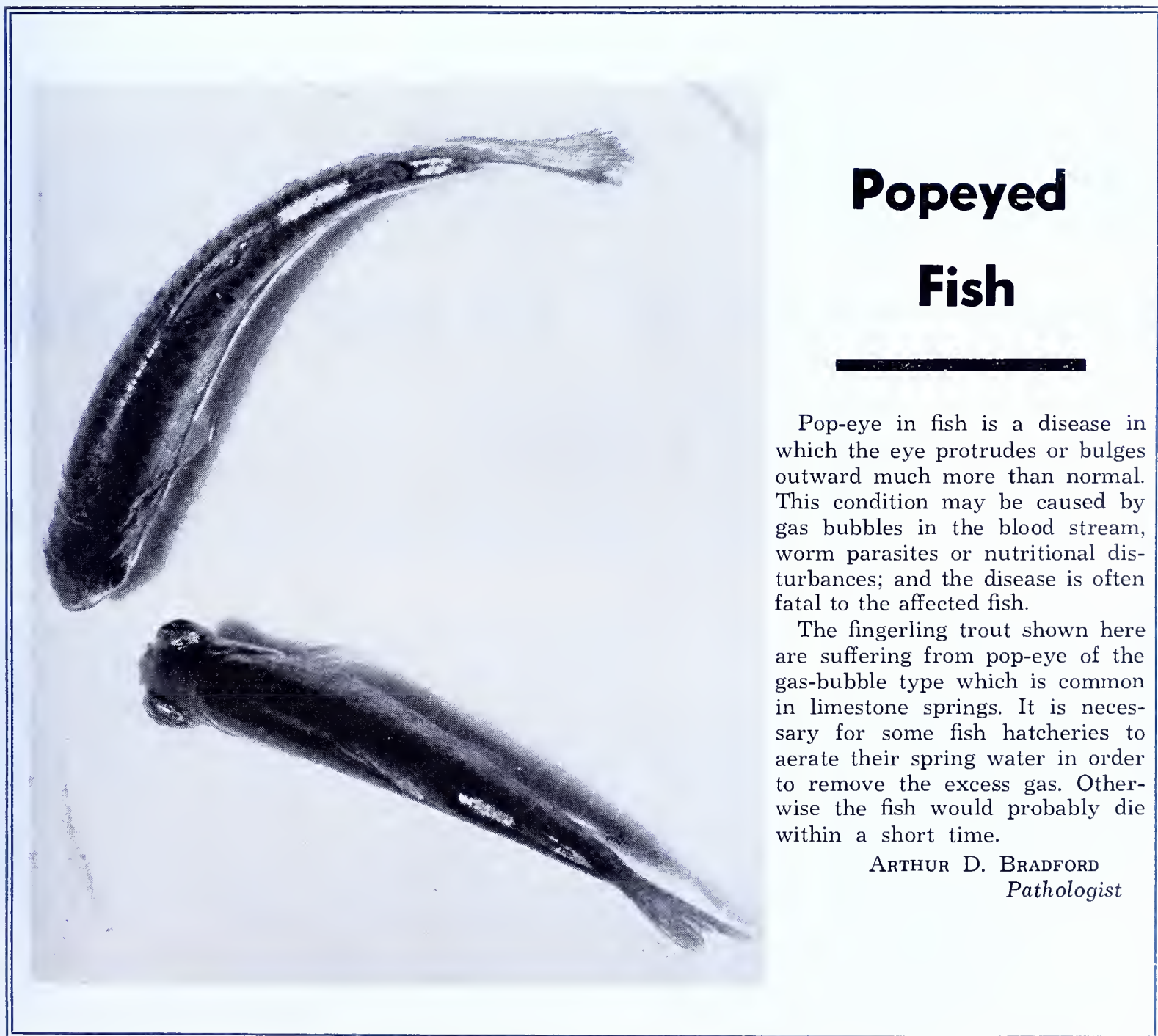
say that they are dominant, recessive, or intermediate. Yet in spite of this complexity, tremendous progress has been made in animal and plant breeding in improvement of these kinds of traits. This progress has been more rapid since the breeders recognized that these traits, too, have a genetic basis and designed their breeding programs around this fact.

It follows that variations in such traits as growth rate, size, and egg production in trout are determined by environmental fluctuations superimposed upon genetic differences. In the improvement of trout brood stock for these characters the latter will receive the main attention of course. That is, we should want to know if strains or

individuals are capable of transmitting to their offspring genes for rapid growth, larger size, etc. But in order to determine this, environmental differences must be minimized. This will require, then, that groups of offspring with differing heredity be grown in ponds of the same construction, water flow, and temperature and they must receive identical types and amounts of food. It is also apparent that in order to compile performance records on the offspring of different parents, all lots of these offspring must be readily identified from hatching until they reach breeding age. The parents themselves must also be identifiable as to which lots they produced, for it is on the basis of performance of their

progeny that they will be selected as progenitors of a superior strain of trout. These requirements can be met, then, only by rearing many small lots of fish in separate, identical ponds.

It is easy to see that no production hatchery can provide these facilities, and this accounts for the limited number of "selective breeding" programs of short duration attempted so far. With the establishment of the proposed research station at Benner Springs, which will be operated in conjunction with the Fisheries Research Laboratory of the Pennsylvania Fish Commission, these limitations should be largely overcome.



Popeyed Fish

Pop-eye in fish is a disease in which the eye protrudes or bulges outward much more than normal. This condition may be caused by gas bubbles in the blood stream, worm parasites or nutritional disturbances; and the disease is often fatal to the affected fish.

The fingerling trout shown here are suffering from pop-eye of the gas-bubble type which is common in limestone springs. It is necessary for some fish hatcheries to aerate their spring water in order to remove the excess gas. Otherwise the fish would probably die within a short time.

ARTHUR D. BRADFORD
Pathologist



◀ A portion of Pocono Quadrangle showing location of Tobyhanna State Park Lake.

such recreational purposes as swimming, boating, picnicking and fishing since it is near a new military depot.

When water first flowed over the spillway of the new dam, Admiral Milo F. Draemel, Secretary, Department Forests and Waters, sent a communication to C. A. French, Executive Director, Pennsylvania Fish Commission, advising him of the completion of the dam. Director French then asked Commission biologists to examine the lake and make recommendations for its management for fishing.

Biological studies were conducted on Tobyhanna State Park Lake in early September, 1951. The lake was found to be teeming with young-of-the-year of bluegill sunfish and golden shiners. Present also were young bullheads and perch but in far less numbers. No species of fish was found which would prey upon the millions of

TOBYHANNA STATE PARK LAKE

By **GORDON L. TREMBLEY**

Chief Aquatic Biologist, Pennsylvania Fish Commission

All photographs by George H. Gordon—Official Photographer,
Pennsylvania Fish Commission

IF YOU will consult the accompanying photograph of a portion of the Pocono Quadrangle, U. S. Geological Survey Map, you will find a body of water known as Lake No. 2 on the edge of the Tobyhanna Military Reservation in Monroe County.

Formerly, Lake No. 2 was used for harvesting ice. Recently the

Pennsylvania Department of Forests and Waters acquired this lake, drained it, built a new dam and gave it a new name. Its official name is now Tobyhanna State Park Lake which fishermen will probably shorten to just Tobyhanna Lake. It is expected that this lake, which has an area of 165 acres, will be used extensively for

young bluegills and golden shiners. Past experience has shown that such fish populations, when left to themselves, often create a situation which eventually leads to poor fishing. Recommendations for this lake read, in part, "This lake is definitely in need of predaceous fishes to offset the great abundance of small sunfish and golden shiners. This water area is suitable for bass and it is therefore recommended that a substantial planting of mature largemouth bass be stocked here as soon as possible. The alternative would be to drain the lake, remove the existing fish population, refill and stock at once with suitable species."

Fortunately a chain of events made it possible to obtain the desired largemouth bass so that draining of Tobyhanna State Park Lake was unnecessary. In October, a Fish Commission Lake (Reining's Pond) in Wayne County had to be pulled down in order to repair the dam. The fish population was removed from Reining's Pond and taken to the Pleasant Mount State Hatchery for holding and to collect information on weight per acre and other data. The production of largemouth bass was exceptionally good in Reining's Pond and 1,000 of these were selected and planted in Tobyhanna State Park Lake on October 31, 1951.

The Pennsylvania Fish Commission does not normally stock this many adult bass in a lake of this

size at one time. In this case, however, the immediate need for such a planting was present and the fish were available. This timely stocking should serve the dual purpose of offering competition to the over-abundant bluegills and shiners and of furnishing future fishing for a large game fish.

The adage "As the twig is bent so the tree inclines" applies to ponds and lakes as well as to trees. One of the most important duties of the fishery biologist is to insure that newly impounded waters get started in the right direction as far as numbers and kinds of fish species are concerned. Establishing the right combination of species in a new water area may mean the difference between good and poor fishing in the future.

The Pennsylvania Department of Forests and Waters owns many lakes in Pennsylvania. These are the favorite retreats of hundreds of thousands of people annually. Naturally, fishing plays an important part in the recreational program offered. The Pennsylvania Fish Commission is responsible for fish management in these public lakes. Thanks to the close cooperation between the two departments, immediate notification is given the Fish Commission when a new dam is completed or alterations are made in old ones. This information is most vital to the quality of the future fishing in these lakes for it allows fishery biologists to examine them in their infancy and to prescribe definite management programs.



◀ The new dam breast and spillway built by the Pennsylvania Department of Forests and Waters.



▼ A general view of the lake.

What About WINTERKILL

FROM time to time one may read in national sporting magazines or in special bulletins about winter suffocation of fish in ice covered ponds and lakes. This suffocation known as "winterkill" often causes serious fish losses, particularly in the North Central States. The question might naturally come up—What about Pennsylvania waters? Do we have anything to worry about as far as winterkill is concerned in this state?

One day in January last year the writer decided to try ice fishing for chain pickerel in a small pond in Bradford County. The catches of this species had been very good during the previous summer season and there were visions of plenty of action with tip-ups. The ice cover was about 4 inches thick and it took only a short time to chop holes for the 5 sets allowed by law. The tip-ups were baited with lively common shiners and a comfortable

By ARTHUR D. BRADFORD

Pathologist, Pennsylvania Fish Commission

— Photographs by —

GEORGE H. GORDON

Official Photographer
Pennsylvania Fish Commission

spot on the bank was chosen to await the first "flag up" which would indicate a strike.

After about a half hour with no action a round of the tip ups was made to see if everything was in good working order. The shiners seemed to be very listless and had far less pep than when first placed on the hook.

Another half hour went by with no strikes apparent and a recheck

revealed that all of the shiners were dead. Later a chemical examination of the water showed that the pond's dissolved oxygen, which is as vital to fish life as oxygen in the air is to land animals, was critically low. The shiners had simply died of suffocation.

A pond in Crawford County furnished fair fishing for many years. A few years ago a severe winterkill wiped out nearly all of the fish population except brown bullheads. Several years previous to the fish killing, farming methods were intensified and chemical fertilizers used extensively.

In a southwestern Pennsylvania town residents complained of the taste and color of their water. An investigation revealed the presence of a large number of plankton organisms which are microscopic plants and animals. An intensification of farming methods above the water company's reservoir had caused fertilizers to be washed into

➤ Winterkill is most always limited to shallow "bog type" ponds or lakes.





◀ Suffocated fish in affected ponds are usually seen after the ice goes out in the spring. Here dead pickerel and perch have been washed into a pond corner.

▼ Ice fishing scene on Lake Wallenpaupack. Winterkill is not a problem in most Pennsylvania waters.



▲ The tip-up is standard gear for ice fishing.

the water resulting in the great increase of plankton. The following winter a severe winterkill occurred in the reservoir.

Fortunately, winterkill is most always limited to a few shallow ponds or lakes which have muck bottoms or become highly fertile due to intensive farming practices in their watersheds. The muck in these waters is composed largely of organic materials from decaying plants and animals. It is this muck that takes out the greatest part of the oxygen during the winter.

When a body of water freezes over the important sources of oxygen may be reduced or eliminated entirely. The ice cover shuts off the supply of this vital element normally picked up and dissolved by wave action. Aquatic plants normally give off oxygen during daylight hours in the warm season and may continue to do so under clear, uncovered ice. However,

when the ice is cloudy or covered with snow, the plants are deprived of sunlight and soon die. The dead plants instead of producing oxygen actually use the element in the process of decay thus adding to the overall depletion.

Deep ponds and lakes contain enough dissolved oxygen before the freeze up to last the entire winter with or without help from plants. Shallow bodies of water may or may not contain enough and severe winters with thick ice and heavy snows can result in fish suffocation.

Ice fishermen may occasionally encounter low oxygen conditions when cutting holes in shallow ponds and lakes. Suffocating fish often rush to these holes in great numbers to gasp for air. If winterkill has occurred the dead fish are usually seen after the ice goes out of a body of water in the spring.

Many methods have been tried

to prevent winterkill in states where this problem is serious. Holes have been cut in the ice of affected lakes and outboard motors used for churning up the water to introduce air. Water has been pumped with force into holes in ice to add air. Snow has been removed from large areas to allow sunlight to penetrate the ice cover for aquatic plant growth and subsequent oxygen production. Substances have been used to break up ice cover in order to prevent winterkill. Water levels of shallow lakes have been raised to store more water and consequently more oxygen.

All of these methods with the exception of the latter have in most instances proven entirely inadequate. Raising the water level is the best means found to date for preventing winter suffocation.

While winterkill can and does occur in this State, Pennsylvania fishermen can be thankful that its incidence is infrequent and usually limited to a very few water areas. Thus in answer to the question put forth in the first paragraph, we have little to worry about in this state as far as winterkill is concerned.

Do SNAPPING TURTLES Aestivate?

By DeWAYNE E. CAMPBELL

Fishery Biologist, Pennsylvania Fish Commission

ON September 20, 1951, the water in Greens Valley Dam, Centre County, Pennsylvania, had become very low due to a prolonged dry spell. Biologists investigating the possible effects of the drought found that snapping turtles (*Chelydra s. serpentina*) were leaving the water and burrowing into the mud along the edge of the receding water; in some cases as much as ten feet from the water. As the prevailing weather at this time was exceptionally warm, it seems improbable that these acts were in preparation for winter hibernation.

Aestivation as opposed to hibernation (occurring in the winter) is generally a dormant period for passing hot, dry periods unfavorable to the life activities of the animal.

Authorities apparently have not conceded that the snapping turtle does aestivate. However, on any other basis the action of these turtles seems difficult to explain.

▼ Turtle emerging from mud.



▲ The disturbed surface of the mud betrays the presence of hidden "snapper."



▲ Snapper complete with "bed clothes."

Some Concepts of

LAKE FISHERIES MANAGEMENT

By DR. FRANCIS J. TREMBLEY

Professor of Ecology*, Lehigh University, Bethlehem, Pennsylvania

THE following observations on lake fishing result from biological surevy work done on lakes and ponds in Pennsylvania, New York, Connecticut and New Jersey over a period of twenty-four years. In a short discussion of this type it will be necessary, and appropriate to confine the observations to Pennsylvania lakes and since there are several hundreds of lakes and ponds in Pennsylvania I will talk about a typical or hypothetical lake. There is of course no such body of water but it is quite logical to imagine one for discussion's sake. The lake will then be a small one, say five to five hundred acres. Most Pennsylvania lakes are small. The glacier was not kind to us. It did not gouge out or dam up a series of large and small lakes as it did farther north. Our lake will also probably be artificial and ranging in age from twenty to fifty years. Its greatest depth may be twenty feet, it will support a rather abundant growth of aquatic vegetation and during the summer it may have a heavy bloom of phytoplankton (the so-called purge). The fish species association present may likely be about as follows: two game species, the chain pickerel and the large mouth bass; from one to five species of panfish, say yellow perch, common sunfish, bluegills, black crappie and brown bullhead; common sucker and occasionally chub sucker and golden shiners. The particular association present will not depend on any logical assort-

(This paper was presented at the annual session of the Pennsylvania Federation of Sportsmen's Clubs, Harrisburg, Oct. 12, 1951.)

ment of proven value but upon the species native to the water shed and those other species that have been added by man.

Also our lake may very likely have acid water with a pH of 4.5 up to 6.5. A great section of mountainous country in Pennsylvania where most fishing lakes are made, is built of sandstones, gneisses and granites which are very low in soluble alkaline minerals. Waters from this type of country usually become acid from the decay of vegetable matter.

Fishing in the lake is not very good or at least it is undependable. On certain days a fair catch may be taken but on many another day there is no catch at all. If the angler spends some time with worms and small hooks he begins to catch small panfish quite often at the rate of two a minute.

Fishing in this typical lake may have been somewhat better in days past. Although all fishermen are inveterate liars, photographs of days' catches of twenty-five to fifty years ago seem to bear this out at least in some cases.

The usual explanation given for this loss of good fishing is the increased number of fishermen.

* Dr. Francis Trembley is the brother of Gordon Trembley, Chief Aquatic Biologist of the Pennsylvania Fish Commission.

It would seem logical that this is true and it may be partly true. However, there are a considerable number of other factors that enter into the productivity of the lake that have been changed radically. At least some of these can be successfully managed with present knowledge. No American will suggest that the population of the United States be reduced so that the rest of the population will have better fishing but it is quite possible to reduce the population of fish in the lake thereby lessening competition among individuals so that at least a reasonable percentage will grow to interesting size.

This typical lake very likely has about as great a poundage of fish as it had in the past. It is still potentially very productive. Each year about the same amount of mineral matter is brought in by the tributary streams and trapped by living plant material both rooted and free floating and swimming. Each year the sun shines on these plants and they synthesize the basic foods for themselves, for small animals which use them for food and indirectly for the fish of the lake. Basically, the potential productivity of the lake depends on these factors, mineral matter present in the water and sunshine hitting the water and it is doubtful that these factors have changed much during the past twenty-five to fifty years.

So the lake is potentially productive but it doesn't produce. That
(Turn to Page 27)



▲OFFICIAL OPENING OF SHAD SEASON along the Lancaster county shore back in the 1890's was occasion for special rites. It was a fairly large industry for a half century or more but faded badly in the early 1900's. Blame, according to veteran shad fishermen is directly placed on over-fishing in lower river, not on dams. Shad runs were decreasing alarmingly prior to dam construction in the river.

SUSQUEHANNA SHAD

vanishing migrant

By RALPH SIDES

All photographs courtesy of the Lancaster Sunday News

A contrary, mysterious fish that no longer makes the traditional annual spring run up Pennsylvania's mighty Susquehanna river. 150 years ago the Susquehanna run of shad was greatest in America. The superiority of the shad fishing here was major cause of the Pennamite War . . . bloody, ugly struggle between Connecticut and Pennsylvania for control of the upper Susquehanna Valley lands. Even after decline, the river yielded 47,000 fish averaging six pounds, between Columbia and Safe Harbor.

NICHES in the big rocks along the York County shore of the Susquehanna River are the last vestige of its namesake, the Susquehannock Indians, who carved footholds in the stone to dip shad some three centuries ago.

At that time these waters were as thick with shad as the pine needles on the forest floor. They swarmed from the Chesapeake Bay in the springtime to spawn upstream beyond the juncture of the Juniata River at Duncannon and as far north as New York state.

The Indians have long been pushed off the map first charted by John Smith about 150 years before the invasion of white settlers and found to be the "best river abounding with fish" to flow into the bay.

Migrating shad are now as scarce as Indians in the upper regions, having been pushed back to almost the limits of brackish water as the years rolled by. Shad get no further than Conowingo where they bump noses against the solid wall of the dam

crossing the river which is only a few miles from the bay.

It was below Deer Creek and the Conowingo dam that I met a shad fisherman. "Wal," the old riverman spat, "shad're like chickens—ya kill the layin' hen ya get no more eggs; no eggs, no more chicks; no chicks, no more hens and so . . ." his voice trailed off. "How," he squealed in harsh conviction "kin ya expect to have shad when we net 'em out year after year full of eggs?"

"What about the dams," I ven-

tured, "don't they prevent the shad from getting up to natural spawning grounds and . . ." I was interrupted by a finger waggled in my face. "Now you looka here son, there ain't no use puttin' blame on dams or nets. It's human cussedness, that's what," and then he stalked off mumbling and only a few cuss words were audible above the chill wind sweeping across the dock.

I turned to see a man take a big long handled dip net from a car and stagger to the river's edge.



▲25 YEARS AGO there were still a few choice shad netted along the Lancaster-York shore. Old time angler weighs up a few in this old photo.



▲OLD PHOTO shows how it was done along the Susquehanna more than 25 years ago. Catch seems to be very poor in this instance.

▼FISHWAYS up which shad were supposed to make their way were built 40 years ago around Holtwood dam, but the contrary shad never seemed to get the idea. This one is on the York county side of the dam.





▲HALF-MILE-LONG NETS and smaller receive much attention and care in preparation for the shad run. Veterans such as one pictured still ply their art in lower Susquehanna mending the nets. This needle is made of plastic. Years ago fishermen made their own needles out of hickory, also made their nets in the old days. One net took a week to make.

▼ SHAD STILL RUN in the Susquehanna below Conowingo dam but they come in ever decreasing numbers. Fishermen here are dipping shad from pound net. Perch and other small fish are caught by gills at left end of net.



Stopping to take a swig from a bottle on his hip, he walked unsteadily out on a narrow plank extending over the surging water.

I expected to see him tumble in the furious rushing stream and was genuinely alarmed that he might be dashed against the treacherous rocks. Holding my breath in suspense I watched him dip his net in the river, bringing it slowly upward against the terrific current and then lift it rhythmically out and over his shoulder. He bent down and repeated the motions again and again. Somehow his feet stayed glued to that rickety board. When he hit a few fish they were tossed ashore where a family of kids and a woman grabbed the flopping fish like in a peanut scramble and put them in a bag.

My memory took me back to the days when I was a kid and this same kind of fishing was done below Holtwood dam before the Conowingo dam was built.

That was back in the days when the Charleston was in full swing and the shad fishermen earned a few bucks swinging a net.

I remember the late Joe Haszelswander of Lancaster did this same thing. It was all sort of a hazy dream now as these people before me tirelessly continued the straining work, recalling one dark night when I felt my way along a catwalk on the wall of the fishway which carried the water down a slope from the lake above the Holtwood dam.

The turbulent water gushed ominously and glinted frothily in the bobbing dull yellow rays of our lantern.

We had to step over a fisherman who was curled up on the wall's edge catching a catnap between turns at the net. I shivered in recollection of what would have happened had that man moved one inch either way while asleep.

There were special places out in

the river among the rocks where these men stationed themselves to dip shad in the fast current that the fish would follow.

The natives of the region congenially relayed at these spots to give each one a chance to fill a potato bag full of the shad. The fish were kept in many instances for home consumption. Many of the old timers before Holtwood was installed claimed islands and rocks at Pequea for the shad run.

There remains one man living who can tell about these experiences . . . Ed Gardner, 81, Martic Forge, where he still conducts a grocery store. Ed, together with the late Casper Hiller, John Wissler and others, would stake claim to an island or rock for operation.

The dip nets called "shad bows" were a valued possession and fashioned by "Cooney" Sowers of Maple Springs near Rawlinsville not far from where the men resided. This skilled craftsman wove

the nets, tying knots for the mesh that would not "slip or run." The bow was made of seasoned ash or hickory and spliced into a long handle of California fir which withstood the terrific strain without snapping or breaking.

It took a strong arm and back to lift a shad filled bow and resist the shock when the big fish hit the net. Ed's handclasp still reflects the strength developed in those early days.

The fish were stored in a barrel, being placed alternately in layers with salt and fish that had been cleaned.

In the wintertime when the river was choked with ice the families would go to the salt barrel for their mainstay of shad. A bath of fresh spring water in a trough overnight would prepare it for cooking a delectable and palatable meal.

There were some shad caught at Holtwood in my time but not enough to lure the fish peddlers.

Most of these fish buyers went to Peach Bottom from Lancaster, Gap, Reading and other parts of the country.

George Kegel of Lancaster, who accompanied me on some of my early experiences on the river, and was following in his dad's "fish-steps," used to purchase shad from commercial fishermen at Peach Bottom.

They would take a boat and row out to a small island which is now inundated by Conowingo dam, below the now famous Eagle (Johnson) Island. There they would get the fish off the scow operated by a couple men by the names of Love and Trumble.

The haul seines were set out in the channel along the York County side and would be "raked in" by rowing and pushing with poles until the nets would roll up the fish that were caught. That was around 1923 and George recalls that buck shad sold for about 25c a pound, roe shad 35c. Today with

inflation the prices are only about 10c higher.

Shad are unfathomable critters. In the spring adults ascend such coastal streams as the Susquehanna where they spawn, after which they return to the sea. Young shad resulting from the spawn spend their first summer in fresh water and then go to the sea where they grow up.

Our fish scientists are as much "at sea" as the shad when the fish are out of tributaries and beyond the depths of human delving.

The natural range of shad is from the St. Johns River in Florida to the Gulf of St. Lawrence in Canada. Successful transplanting was made in the Sacramento River in California and today shad are to be found from Southern California to Southwestern Alaska.

White shad have been reported weighing 13½ pounds, 6 to 8 pounders are large, 4 to 5 pounders good, and general average 2 to 4 pounds.

Fishways became a "fightin' word" among sportsmen and power officials, a bugaboo that brought accusations flying back and forth. The sports-minded people claimed that shad would use a good fishway and keep coming upstream if the power companies would build them.

The Power Company did everything in its power to prove the point that shad wouldn't cooperate with their efforts and compromised by contributing to the states' stocking program. What most sportsmen don't know is how far back this feud originates and to what extent overfishing commercially and lack of conservation has reduced a limitless species to a numbered tribe.

Back in depression days the Secretary of Commerce took time out from his problems to consider the "depression of the shad" from 50 million pound catches to a mere 13 million in less than three decades. That was a 75% decrease.

This fact was overlooked during the early fights about dams in the Susquehanna. There was a hue and cry when in 1866 Colonel James Worrall was appointed Commissioner for Restoration of



A SCOW is disengaged from main boat and floated through net barrier where net was raised toward one side to bring up haul, fish then dipped into the scow. Big pound nets like this one are kept in the water permanently. Gill and set nets are put down over night. Pound nets are complicated but work on the plan similar to a funnel mousetrap.

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For cat's sake what's this thing?

THE KITTENS AND THE CRAWFISH

By J. M. HOOD

All photographs by the author.

When kittens meet a strange creature that also has sharp claws something's bound to happen. The camera tells the story.

Funniest-looking critter we ever saw!



Yeh! . . . I'll take both youse guys on!



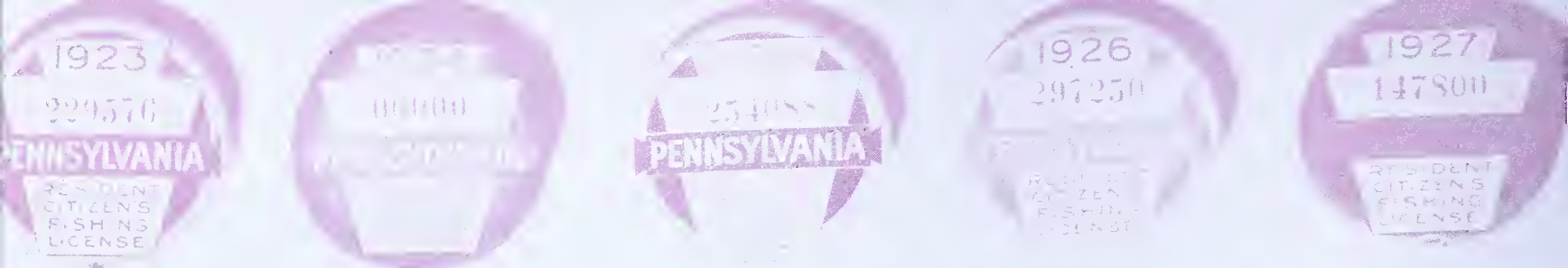
Hey, Bub! Take it easy!

Let's get a closer look-see!



MEOWCH! M E O W C H !





What The FISHERMAN'S



AT THE convention of the Pennsylvania Federation of Sportsmen's Clubs in Harrisburg on October 12 and 13, 1951, several interesting addresses were delivered. I was particularly impressed with the talk by Dr. R. W. Eschmeyer, Executive Vice President of the Sports Fishing Institute, Washington, D. C., who spoke on "The Sportsman's Role in Fish Conservation." Among other things, he stated fishing today is big business and not to let anybody fool you on that point. He also said it provided recreation for some 15,000,000 Americans who are licensed, and in addition, millions of others who do not come within the requirements of the license law. In his opinion, any wide-awake commission should budget at least ten percent of the license revenue for fact finding, and ten percent for education. His thought on fishing was also timely—and that people should be taught to fish for fun and put some back for another day; in this, he commended Pennsylvania for doing a good job.

Now, how did this come about? Those of us who have been in conservation work for many years know that all of it has been made possible through the enactment of adequate license laws. By that I mean laws between specific ages, and covering all fishing with rod and line, regardless of whether it is fancy tackle or the cane pole. We should all be equal, and that is as it should be if adequate funds are to be available. It is gratifying to know that 98% of Pennsylvania's Fishermen want it that way.

That fishing is really big business and pouring millions of dollars annually into the cash registers of American business

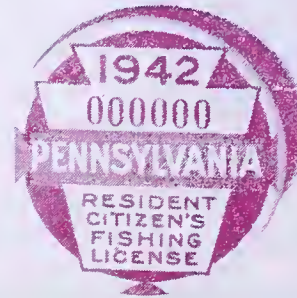
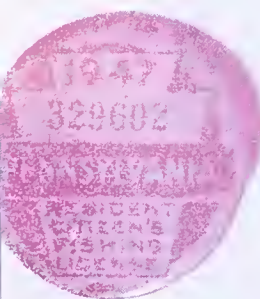
men is no idle statement when you compare today with thirty years ago, and it all can be attributed solely to the enactment of a fisherman's license law.

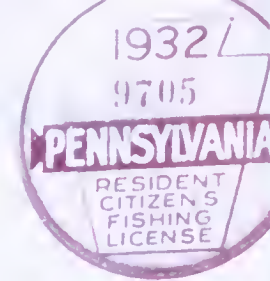
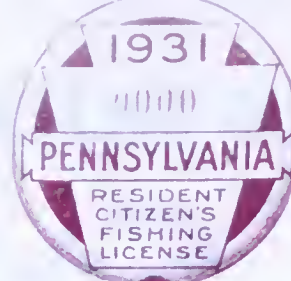
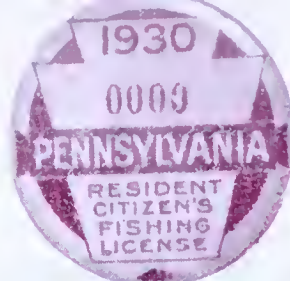
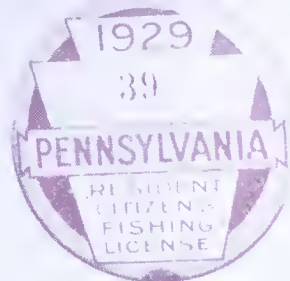
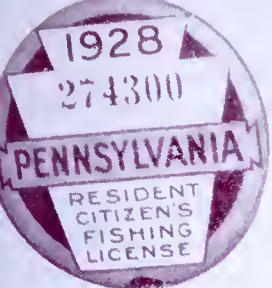
Let us look at the record—Prior to 1922, the Pennsylvania Fish Commission was operating under appropriations from the Legislature, which at no time exceeded \$75,000 yearly for all operations. Our present monthly expenditures average \$100,000. With the enactment of the Resident License Law in 1921, which became effective January 1, 1922, the number of licenses issued was 203,061. During the first year the fishing license was \$1.00 and the total receipts amounted to \$203,061. In 1928 the license was increased to \$1.50 and the total receipts amounted to \$382,913.50. In 1947 the license was increased to \$2.00. During the year 1950, 641,508 licenses were issued and the receipts from all sources amounted to \$1,309,579.25.

It might be of interest to state here that of the fifty cents increase, twenty-five cents was set aside for

The acquisition in the name of the Commonwealth by purchase of land and fishing waters or warm water ponds, or lands which because of their natural conditions can be converted into ponds, dams or reservoirs anywhere in the Commonwealth or in any part thereof, with such rights of ingress or egress to or from such waters as may be necessary to make the same available for use by the citizens of the Commonwealth for fishing and the maintenance thereof,

The rebuilding of torn out dams,





LICENSE

Has Done in Pennsylvania

The study of problems related to better fishing.

It is my firm belief that if any state or conservation commission is to be successful in the administration of a program to improve fishing in their respective states, it can only be through the enactment of a resident license law.

If history is to be depended upon, the following will result:

1. The actual accomplishment of those things advocated for many years.
2. The creation of a spirit of cooperation between the fisherman, associations and clubs, which was little dreamed of under appropriations.
3. Proper maintenance and extension of hatcheries, thereby, increasing production.
4. Purchase of sites and construction of new hatcheries—acquisition of streams and waters for public fishing—creation of lakes, etc.

Since the enactment of Pennsylvania's License Law, many states in the Union have been in close touch with our program, seeking information as to the proper laws which should be enacted. In some instances, states have license laws which are practically useless insofar as a revenue producer is concerned, by having embodied in the law exceptions as to kinds of tackle used, exemption for certain waters and other restrictions which make it impossible to properly enforce. The only law which can be properly administered is one which covers every fisherman within the age limits. You cannot discriminate and have an effective law. It goes without saying that any restric-

By H. R. STACKHOUSE

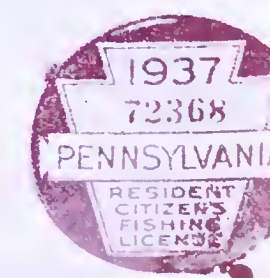
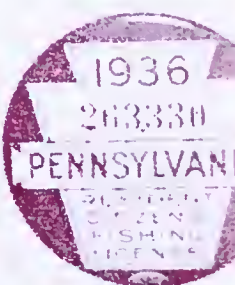
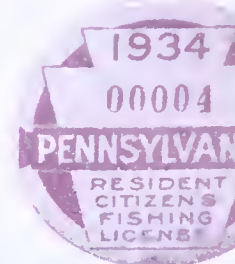
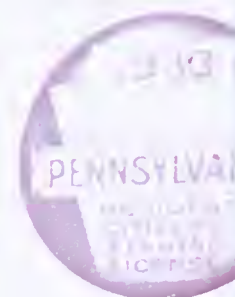
Administrative Secretary, Pennsylvania Fish Commission

tions on the license law in Pennsylvania would immediately make it inoperative and useless, if a program is to be carried out.

Various types of identification are being used. Pennsylvania has found the license button the most practical. While we are not now using the license button originally adopted, it follows the same general principal and we believe it has passed the experimental stage. It is a well-known fact that it takes from eight to ten years to build up a license to its peak figure. In Pennsylvania each year has shown a marked increase.

In closing let me remind you that education is one of the prime factors in developing any plan. The Spring Creek Project is a good example as applied to Pennsylvania. Many of you are familiar with the project which was set up many years ago to demonstrate what intelligent stream improvement can do towards not only increasing the fish in a stream, but also the food supply which is so important. It has also made many thousands of fly fishermen, thereby, preserving the minnows and other forms of live bait.

Fishing is a most beneficial and health giving recreation and in the work which we are doing among the younger generation, it cannot help but develop better citizens, which is so vital to our American Way of Life.



How to Select

Streamers

and

Bucktails

By JOE BATES, JR.

THE PENNSYLVANIA ANGLER is happy to present this first of a series of articles on streamer fly fishing and on spinning by Joe Bates, Jr. Joe needs no introduction to American fishermen. He is the author of "Spinning for American Gamefish," long considered as the standard work on the subject, and he now is writing two new books on spinning. He formerly was Fishing Editor of "Hunting and Fishing Magazine" and is a frequent contributor to leading sporting publications. In spite of his fame in the sphere of spinning, Joe is an accomplished fly rod angler, as his books "Trout Waters and How to Fish Them" and "Streamer Fly Fishing in Fresh and Salt Water" prove. All of Joe's books present valuable, new information and all are considered classics in their fields. We are happy to welcome Joe Bates, Jr. to the ranks of our writers and we know that our readers will find his articles to be both interesting and instructive.

MANY years ago, a very well known elderly angler took me fly fishing for bass. We tried all the appropriate conventional patterns of streamer flies and bucktails, but without success. Finally the old angler dipped deep into his kit and produced an absurdity dressed with long, floppy hackles of red, green, yellow, white and blue, heavily ruffed at the head and with a body rather badly dressed in silver tinsel. He tied the odd looking thing to his leader and cast it to the rocks along the shore. It floated there for nearly a minute, splayed in all directions, while the old gentleman puffed placidly at his pipe. And then he gave the rod a deft twist, bringing the gaudy creation to life and pulling it under the surface. The explosion that happened in the water was tremendous. A four pound bass had the fly, and soon the old gentleman had the bass. In the next half hour, with the same fly, he caught three more!

"Why in blue blazes will a bass take that darn thing?", I asked him. He replied with an observation which I never shall forget.

"Fish don't take streamer flies just because they are hungry," he said. "They take 'em also because they are curious, because they are hungry, or in the spirit of play. The bass have been seeing all the usual flies we offered 'em, but either the streamers didn't look right or the fish weren't hungry. So what do we do? We try to make 'em mad, or curious, or playful. Slapping that queer looking bunch of feathers down in the water that way probably made 'em so mad that they just had to try to kill it to get it out of the way."

I've tried the same thing myself very successfully many times with marabou streamers. A friend of mine reports that he learned the trick by dressing a monstrosity from the hackles of a feather boa which he appropriated from a lady of ill repute in a joint on the

Yukon. Anyway, it brings up an idea worth considering!

The streamer flies or bucktails which fish take because they are hungry all can be put in one class. Exact imitations, let's call them. They all simulate minnows or baitfish of one kind or another and all should be fished in the manner that the baitfish swims.

But what about the queer creations, such as the one the old man used, which look more fowl than like a fish? We all have them in our fly books and anyone in his right mind would wonder why any self respecting gamefish would be a sucker for them. We can group the whole bunch under the three remaining classifications which the old man mentioned. Fish take them because they are angry, playful or curious, and we don't care which of these three reasons they do it for. They take them more readily if we fish them in the most unorthodox manner possible.

For example, I knew where there

once was a big rainbow trout. No fly fished properly would catch him. Finally, I drifted a white marabou under his rock and fluffed it practically in his face for several minutes. Evidently he got madder and madder, because eventually he hit it like the proverbial ton of brick. Just couldn't stand it any more, I guess.

The streamers and bucktails in the "queer" category can be left as a last resort. In most cases, fish take flies because they are hungry, and the flies should be chosen and manipulated with this in mind.

Another old timer set me on the right track in this regard by advising me to look at the baitfish in a stream or lake before selecting a fly. There are many hundreds of kinds of baitfish, in all sizes. Even the same kinds vary in coloration during spawning time. For small gamefish, or when baitfish are small, let's pick a very small streamer or bucktail. When they are bigger, we should act accordingly.

Most baitfish are rather slim in shape, but some are short and fat. This tells us whether the fly should be sparsely dressed or not. The way it looks when dry is not important. Wet it down and then decide. Most baitfish have a silvery underbelly, but some are of a golden hue. Silver bodied fly or gold bodied fly—or one of chenille or something else? Let the baitfish decide!

While we are letting the baitfish decide on fly patterns for us, let's not forget the rest of their coloration. Do they have a pronounced middle stripe? If so, a three layered wing buck tail or streamer is in order, such as a "Mickey Finn" or a "Black Nosed Dace." If they are barred in coloration, maybe a fly of Plymouth Rock hackles will do better. If the baitfish have backs of green, bronze, brown or blue, it is easy to select a fly which imitates them.

Conditions of weather and water are equally important. In the spring, when streams are full and discolored, we need brightly colored flies—and bigger ones. When waters are low and clear, smaller

flies of more sombre hues and with less tinsel are called for. This becomes more obvious when we look at it from the fishes' point of view. On a clear day in clear water they can see just about as well as we can. A fly too big and too bright, with sunlight reflecting from its tinsel, may scare them rather than attract them. But when the day is dark and the water high and muddy, the bright fly will appear dull, and it must be fairly big in order to be seen.

With these things in mind, the streamer fly fisherman can take a more intelligent look at his fly book. Even if he has hundreds of patterns, the ones that fit the situation are decided by the baitfish, by conditions of water and weather, and by the size and type of gamefish we are seeking. The three yardsticks to go by are *form* (which means both size and shape), *flash* (which means in-

tensity of color) and *action* (which means the way the fly is fished). Actual colors are less important than the intensity and distribution of the colors. Form is more important than color. Flash is more important than color. And action is the most important of all.

If several streamers or bucktails fit the conditions under which we are fishing, any one of them should do about as well as another. It is not hard to select the fly that should do the job. The important thing, then, is how and where we fish it. It must look like a baitfish and it must act like a baitfish. If it does both, we can be pretty sure that a hungry trout or bass will take it. Fooling the hatchery fish is one thing, and fooling the wise old natives is another. Catching the big ones calls for a lot of judgment and skill—but that's part of what makes fly fishing so much fun!



Streamer Patterns	
Mickey Finn	Edson Light Tiger
Nine-three	Ballou Special
Welch Rarebit	Governor Aiken
Black Nosed Dace	Black Bird
Family Secret	Grey Ghost

How To Tie The **ROYAL COACHMAN**



▲ The first step in tying a fly is to insert a hook into the jaws of a vise and fasten a piece of thread to the sharp point. The vise is used to hold the hook securely so the tier can have both hands free to work.

By Don Shiner

Ask any fisherman what the most popular fly is and with little hesitation he will answer that it is the "Royal Coachman Fly." As a dry fly it resembles little in nature, yet it is a beautiful fly and one that has lured many many trout into the creel. It is therefore fitting that the Royal Coachman fly should be the one used to illustrate the various steps involved when tying flies.

To construct a fly is indeed a simple task. The entire construction involves wrapping thread around a hook for some thirty odd times, binding bits of feathers and fur in place. From the time the hook is inserted into a vise, bits of these materials are wound securely to the hook by means of this tying thread and after about six such operations, the fly is complete.

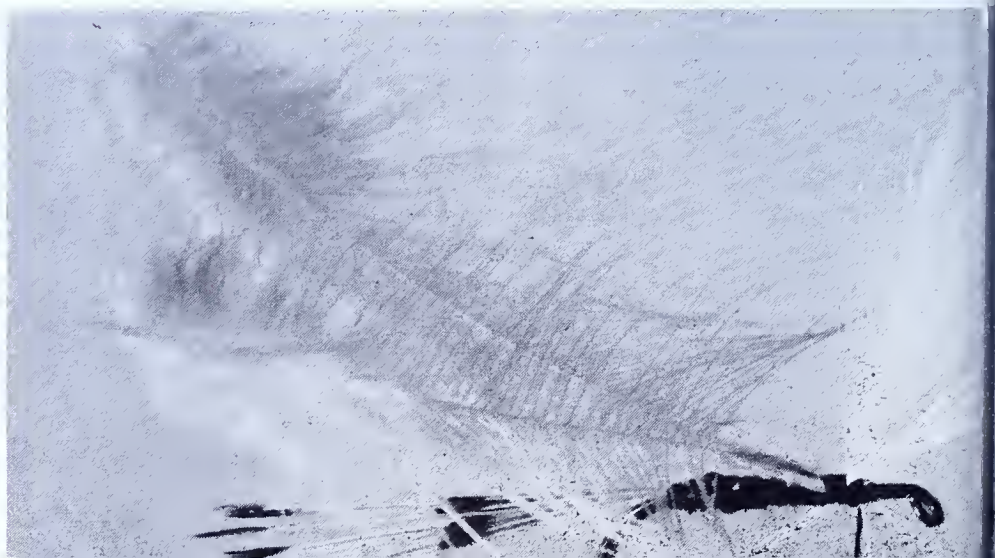
Fine wire hooks are used so that the finished fly is light in weight and able to float upon the water reasonably well. Skill and proficiency will come after a few dozen flies are made, yet, the very first one will look good to the fish!

So gather some feathers, some fur and some yarn and set to work using this page as a guide to tie your first group of flies. It's fun for those winter evenings and thrilling to catch trout on flies made by the angler in his spare time.



▲ The second step is to hold a few fibers of a feather on top the hook, near the bend, and wrapping the tying silk over it a number of times. A few fibers from a Golden pheasant tippet feather are used to make this Royal Coachman fly.

▼ Step number three is to add the wings. Wings can be made from sections of quill feathers, bunches of hair or tips of hackle feathers as shown in the picture. The tying thread is wrapped over the wing material and the hook and a few wrappings placed both in front and to the rear of the wings forcing them to stand erect.





▲ Now add the body to the fly. This can be wool yarn, quills, spun fur, or silk floss a fiber from a peacock tail feather. The last two mentioned are used to make the body of the Royal Coachman fly and are shown here being tied in place by again wrapping the tying thread over the material and the hook.



▲ The peacock herl fiber and red floss are wound around the hook toward the wings. Near the wings the tying thread is again wound over the end of the material to hold it firmly in place.



▲ The last step is tying the hackles to the fly. A hackle feather (the fibrous feather found on the necks of game-cocks) is tied to the hook either in front or to the rear of the wings by wrapping the tying thread over the butt end. The feather is then wound around the hook.

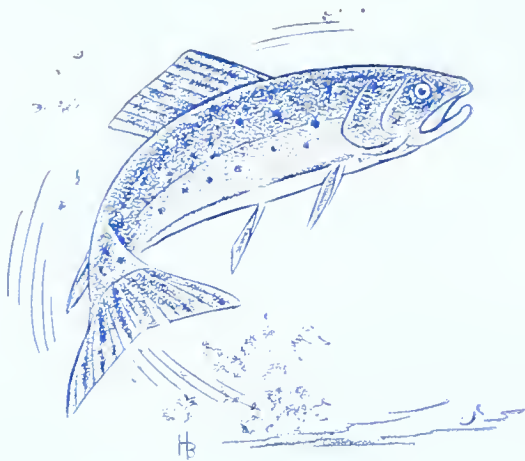
▼ Here is the finished Royal Coachman fly. It is not difficult to make for as it was seen, the fly is actually made by wrapping thread around the hook which holds bits of feathers securely to the hook.



▲ Here the hackles are wound in place with the aid of a pair of hackle pliers. Note how this feather causes the fibers to project outward in all directions from the hook. Good hackles must be used for the fly depends upon these to float properly.

▼ The famous Fan-wing Royal Coachman fly is made in the very same manner, as are all flies except that two feathers from the breast of a white duck are used to make the graceful fan-like wings.





Jungle Cock and Porkey Quills

By Albert G. Shimmel

FLY FISHERMEN are a very peculiar group in the fabric of human society. Their's is a harmless sort of madness that causes them to make a general nuisance of themselves in their effort to convert more believers to their cause, and indulge in endless hours of argument when two or more members of the faith meet. An almost imperceptible difference in the color of hackle feathers is enough to cause a minor furor. Dealers in tyers' supplies have a continual headache in trying to match samples of materials.

The worst offenders are the amateur experts who after constructing a dozen or two flies and perhaps deluding a few fingerlings into taking them for something edible, are much too willing to be self appointed experts in the whole field of angling. A well known firm of commercial tyers who have been known for the excellency of its product for half a century does not consider a tyer in its employ out of the amateur class until they have completed over a hundred dozen specimens. As in most crafts there is no perfection but at the cost of great labor. If the same energy, thought, and minute care, that goes into the creation of trout flies by amateurs were applied to a business project I am convinced that the number of millionaires in this country would be considerably greater.

Most of the improvements in the art of tying and in discovery of new materials have been discovered by these enthusiastic amateurs or as perhaps they should more correctly be called non-professionals. Let a material become rare or unobtainable and immediately a good substitute is either found or manufactured. Strange

as it may seem, in spite of the arguments, trout and other game fish seem to fall as readily for the substitute as they did for the genuine article.

A few years ago when the war cut off imports of Jungle Cock necks the stock in the hands of dealers were either advanced in price or marked for "personal use only," if the dealer happened to be an angler. As a result the market was soon flooded with imitations usually printed on fabric or plastics. While these commercial imitations in many cases were just as effective and much more durable than the natural feather yet to the human eye they looked just like the imitation they were. One of the big defects was the imitation lacked the flexibility of the natural. When tied on a streamer it had the annoying habit of flaring away from the fly like a pair of out-of-place wings.

The search for a substitute ended when the drop of lacquer with which I was finishing the head of a streamer accidentally landed on the tip of a hackle feather lying on the tying table. It looked surprisingly like the eye of a Jungle Cock feather. Experimentation with brown, yellow and white lacquers soon produced imitation Jungle Cock Eyes that were difficult to tell from the real article.

The base for the artificial Jungle Cock Eyes were soft hen's hackle laid in pairs on a pane of window glass. From twelve to twenty-five pairs were laid out each time to give the lacquer sufficient time to dry properly. With a small bodkin or sharp sliver of wood run thin white lacquer along each quill and shape the eye spots as they appear in a natural feather.

Cut the end of a lollipop stick

in the shape of a rounded wedge to the shape of the natural eye. With a blend of yellow and brown matching as nearly as possible the dark portion of the eye print the color over the white base allowing some of the white to show near the quill side of the eye. With some practice and experimenting the imitations may be made so skillfully twenty pairs per hour is a very modest rate of speed. So nearly can they be copied from the natural it is only by close examination a fly shouldered with imitations can be selected from one having natural feathers.

There is an added advantage in that colors can be varied to suit the tyers choice. The artificial feather eyes will not split and seem to be much more durable. For best results in blending colors the lacquers should be printed on over the other while the under color is still slightly moist. By working on glass or a non-porus material the feathers may be picked up easily when dry. They adhere exasperatingly to any porous surface.

There are some possibilities of using the relatively new Fire Lacquer to create modern Jungle Cock that would make the wild producer of the real feathers turn green with envy.

Another feather that has long been gone from the market due to protection of migratory bird law is wax wing tips. Years ago many fancy flies of the most expensive sort sported a pair of shoulder feathers of the common Cedar Waxwing.

These feathers when tied under Jungle Cock with the red quill tip separated from the Jungle Cock Eye by a narrow margin of gray formed an additional attraction

that added considerable to the value of a fly and was thought by some to be almost irresistible to salmon and native trout.

Beautiful substitutes for this feather may be made by taking the greater coverts of a starling wing and trimming about a sixteenth inch of the tip of the web allowing the quill to remain. This tip dipped or painted a delicate shade of pinkish red makes a colorful addition to any shouldered fly. The added attraction not only delights the eye of the angler craftsman but also seems to be irresistible to certain game fish.

It is proper the gentle little Cedar Waxwing and its larger cousin the Bohemian Waxwing are well protected. Their quaker colors and quiet beauty make them favorite of all bird students. The only persons who have any complaint against them are the growers of cherries and small fruits. Even these will not be molested if a few wild cherry and mulberry trees grow nearby. Their fondness for fruit have led to their common name of "Cherry Bird."

Another material that gives the angler craftsman considerable trouble with its fragileness is the quill body constructed of peacock eye feathers. It seems that few flies with the quill body will endure a second trip astream. For years I sought in vain for a durable substitute. Then a porcupine made such a nuisance of himself that his destruction was inevitable. It fell to my lot to be his executioner and dispose of the remains.

At the time I was searching for a material that would imitate the body of the Shad Fly. The large white quills looked good for that purpose so I obtained a supply. Mixed with the white were some slender brown ones. Experimentation proved that a white and a brown carefully flattened and tied side by side formed a quill body unsurpassed in color and durability. The white may be dyed any color and some odd and startling combinations may result. Try the colored ones with gold or silver tinsel for streamer bodies. The results are surprising.

A warning to fathers of Boy Scouts who are studying Indian Lore: Keep your colored quills

Wistful Thinking

BY DR. N. S. TIRARD

The Editor discovered this little nostalgic piece in the Autumn, 1951 issue of the JOURNAL OF THE FLYFISHERS' CLUB of London, England. In a letter of reply from the author, after requesting reprint permission, Dr. Tirard wrote: "There is such a universal brotherhood among anglers that I am delighted to agree to your request and hope the little article will give pleasure to your readers."

I HAD been spending an enjoyable hour in my favorite tackle shop considering the merits of some new trout reels and trying to think of an excuse to buy one when I knew that my old one was really perfectly good. Presently the door opened and a remarkable couple came in. He must have been nearly ninety and leant heavily on a stick and on the arm of a dear little lady only a few years younger than himself. The salesman greeted them with marked deference, pushing the reels to one side and clearing the counter.

"Good morning Madam, good morning Sir," he said beaming on them kindly. "What can I show you to-day?"

"I want some sea trout flies," replied the old man with, I noticed, the usual anticipatory gleam in his eyes.

"Certainly, Sir, and where will you be going this year?" inquired the salesman, bringing out that fascinating tray with little compartments filled with a gay selection of flies.

"Well, my doctor came in the other day—as a friend, of course, there is nothing the matter with me—" the old man straightened his shoulders and looked defiantly at the salesman as he spoke—"and

he was telling me of a little river in the West of Ireland."

And then the two of them began the old game of picking over the flies, discussing sizes and dressings, and eventually putting on one side about three dozen of them. Meanwhile I had stood aside, quite fascinated by the shaky hands fluttering over the boxes and steadying as they delicately picked out the flies.

"Will that be all, Sir?" asked the salesman, as he packed the flies carefully in separate little boxes.

"Yes, I think so," replied the old man. "I will come in again if I think of anything else."

I watched the pair depart, chattering gaily and certainly looking younger than when they came in.

"What a wonderful couple!" I remarked. "I hope I shall still be able to fish when I am their age."

"It's many years since they did," said the salesman, "but they come in every year about this time and choose their flies in the same old way. The old lady will send them back to me to-morrow, saying they have been prevented from going this year. It's a little arrangement I have with her. After all, it's his only pleasure now," he sighed gently, "and who am I to deny it?"

I found every excuse to buy a new trout reel.

under strict observation or you will find them appearing in the form of quill embroidery on Junior's moccasins or Indian vest. If this proves the case you may be forced to go hunting for a full skin of quills. If a porcupine gnaws the handle of your favorite axe, the steps of your woodland cabin or makes the night hideous with the chatter of his teeth as he tries to extract a bit of salt from the frying pan you have propped beside your camp-fire then you may feel

justified in speeding his departure from this life in an efficiently scientific manner confiscating his coat of many quills for your own purposes.

The Indian will warn you to burn his whiskers to keep his spirit from returning to haunt you and his quills from straying to the very log you have chosen for a seat. After you have met all these necessary ceremonies use his quills and don't be surprised if all your trout will be special ones.

Our Anglerettes

By Ellen A. Dietrich

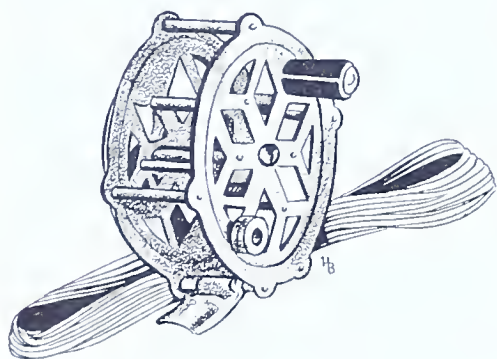
... As Four Eggs Hit the Ceiling

Howard and Hannah—"Two, Good Eggs," as they were fondly named by some of their friends—hurried about their apartment, gathering what paraphernalia they'd need to spend an hour or two on a nearby stream.

"Hope we don't get out there without one of our reels or some other important item of tackle, like we did last time we made up our minds so suddenly to go!" called Hannah from the direction of the bathroom.

"Well, you always seem to enjoy surprises," responded Howard, as he kicked off his shoes and pulled a pair of hip boots from their hangers.

Within a matter of minutes, angler and anglerette were on their way, still hurrying to make the most of precious daylight time that seemed already well spent.



"When I said at the breakfast table that I'd be too tired to fish tonight, I meant every word of it. I anticipated this would be another tough day of a really tough week at the job."

"And was it?" queried his spouse.

"You bet it was. But that look of disappointment on your face haunted me all day. So here we are!"

The good husband pulled the car to the side of the road, his energy renewed, as it usually was, by the sight and sound of running water.

Within a very few additional moments, rods and reels were together and our pair were on the stream.

Hannah's first cast, as she hid herself in the shadow of a bridge, produced a terrific strike. But the strike was short, as though the finny creature realized just before it was too late that the lure spelled trouble. A bass, for sure. She had caught a glimpse of it as it rolled over.

"I felt in my bones that this evening would bring results!" she exclaimed aloud.

Glancing downstream, our anglerette noticed that her partner was some distance away and rounding a bend in the stream. She wouldn't call to him now, she decided. Early in her fishing experience she had learned that *quiet* fishermen are the most successful. Too, it would be much more fun to surprise him after she had actually *caught* the fish. For, catch him she was certain she would.

With spirits high and fingers trembling, therefore, our heroine waited a short while and then set about a scientific endeavor to fool the wily bass. Try as she would, however—with all the tricks she had been taught, plus a few that she had devised—she couldn't get another rise from the likely spot.

Perhaps she should call Howard back, after all. Perchance he'd know just the lure or the technique to tempt the stubborn one.

Howard, though, had had better luck around the bend. Two nice ones already rested in his creel; and, needless to add, his tough work schedule of the past week was already completely forgotten. He proposed that they proceed on downstream to the next big hole.

"That picnic spot, you know. It's always good for a nibble or two," he reminded.

"Well, all right," agreed Hannah. "Maybe if we give that fellow back there a rest, he'll forget himself and strike right next time."

Noiselessly, the pair made their way along a wooded path that led toward their favorite picnic spot. As they reached the usually beautiful area on this occasion, however, our "Two Good Eggs" fairly "hit the ceiling" with righteous indignation! Others had already been there and had left unsightly proofs of their presence. Tin cans, bottles, scraps of food, newspapers, candy wrappers and sandwich bags were among the debris scattered here and yon.

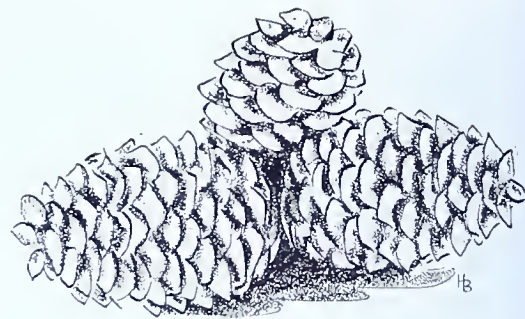
"For shame!" bellowed Howard.

"Some human beings just *aren't* human, dear!" added Hannah, almost rubbing her eyes in disbelief.

"I'll say they aren't, ma'am!" interrupted a strong, young voice, as three boys emerged from the bushes on the other side of the creek. "We came here at noon to fish but we found some other folks had already taken over, so we moved on."

"Oh, we didn't begrudge them the place, 'cause we knew where there are plenty of other good fishin' holes," hastily added another of the trio.

"No," concluded the third, a quiet, thoughtful fellow. "We didn't begrudge them the spot. But when we came back



and saw they had left all this mess we were sorry we hadn't taken their auto license number to turn over to the police or somebody."

To the astonishment of our adult anglers and obviously as though they had already agreed to do so, the youths thereupon set about gathering the rubbish left by the thoughtless ones.

"You see, we're Boy Scouts," explained the thoughtful fellow. "Besides, we'd hate to have somebody put up 'No Trespassing' signs to keep us *all* out of here!"

Hannah and Howard were only too glad to help accomplish the good deed for the day. They placed the trash in their car, to be deposited in a rubbish container back home. The picnickers themselves, they agreed, could easily have done this—and probably would have done so if they had stopped only a moment to think of the far-reaching effects of such a logical procedure.

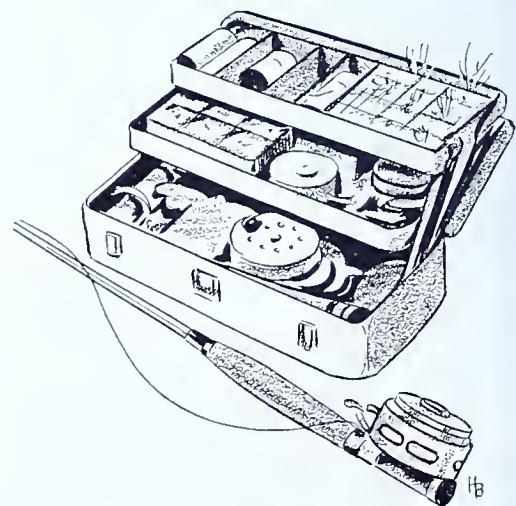
"Well," mused the male of the "Two Good Eggs," as he turned the key in the lock back home, "I guess a lot of folks are in too much of a hurry now-a-days. . . . Phew! What's that odor?"

Quickly the pair made their way to the kitchen, where another unusual sight met their gaze.

"Oh, those eggs!" Hannah was immediately contrite. "I was boiling them when you came home. I guess I, also, was in too much of a hurry."

Eggs and egg shell clung to the ceiling—dried, and up there to stay. On the range below, there was a bottomless pot.

Two more eggs had hit the ceiling that eventful day—two real eggs and a real ceiling this time!



the trouble with the lake is not primarily due to over-fishing can be determined by observing the history of certain "fished out" lakes. These lakes formerly produced good fishing but were said to be "fished out" and were deserted by fishermen. If this were true one would expect them to recover after a number of years of rest but they rarely do. They seem to remain in a static, unproductive state indefinitely. When examined carefully by netting operations they are found to be heavily populated with one or more species of pan-fish all greatly stunted and of no use to the fishermen except as bait. Little perch of five or six inches may be as much as six or eight years old. Bluegills may occur by the hundreds of thousands with only a very small percentage ever attaining an attractive take-home size. The same may be true of crappies or bullheads or any other species which can stay alive and reproduce under these conditions of intense competition.

The value of stocking fingerling game fish in a lake of this type is questionable. They can't meet the competition for food. Stocking with a large number of adult game fish might bring back a reasonable balance but with yearling bass from commercial hatcheries, costing from \$1.50 to \$2.00 each, it is prohibitively expensive.

At this point the word ecology must be brought into the picture. You have all heard it. It can be simply defined as the study of the interrelationships of living things to each other and to their environment. It seems quite evident that until fishermen in general acquire an ecological viewpoint we cannot get full value of the waters we have. Let us take an example. Among our wild ducks native to North America we have three species of mergansers or shell-drakes. They are fish-eaters being highly adapted to catch fish under water. The simple attitude to take toward these fish predators is that they eat fish, we want fish therefore let's kill mergansers and there will be more fish left for us. But now let's ask some ecological ques-

tions. What sizes of fish do the mergansers eat? Do they prefer any one species over others? Have they ever been known to reduce seriously a species in a lake? After they eat the fish is there any return of value to the lake waters? How abundant are mergansers? Are they increasing or decreasing and finally is fishing poorer or better in lakes which mergansers use as feeding places during migration?

Thus the seemingly simple question of the effect of merganser fishing on a lake is really a complicated one. In my own experience some of the ecological questions can be at least partially answered. Mergansers seem to take about any small fish and by so doing tend to take most of those which are most abundant. In many of our lakes, perhaps in most, this is decidedly beneficial. Nature expects this reduction. The reproductive potentials of fish have been geared to it over vast periods of time. Without it overpopulation, stunting and loss of good fishing is almost sure to occur. Of course not only the mergansers are concerned in this predator-prey relationship but all other fish predators of the region.

It is doubtful that the mergansers ever reduce any population seriously. When food becomes at all scarce they move on, being highly mobile creatures. The fish that are eaten are used to stoke the fires of metabolism of the birds and like any machine waste products are thrown off. These waste products, the droppings of the birds, are now known to be excellent fertilizer for lakes and ponds. This seems to be especially so in acid waters. The high uric acid content of the droppings when acted upon by bacteria produces alkaline materials and nitrates. Both are of great value in boosting the productivity of the lake. It is possible that the richness of Pymatuning, one of the richest lakes in the United States, is in part due to the droppings of the great numbers of waterfowl which use it each year. In general lakes on migration flyways are better than those off the flyways. Dr. Bennet of Illinois notes the correlation between the decrease

in bullhead fishing in lakes, and the decrease in numbers of fish-eating birds.

This may change some of your ideas concerning fish predators. At least I hope it does. I cannot help but believe that a fully developed population of fish-eating birds, mammals and even the lowly, much maligned water snakes in their combined fish-eating abilities are the best of friends to the fisherman and to good fishing. I have supervised the spending of too many thousands of dollars in difficult netting operations trying to restore a reasonable game-fish, pan-fish, forage-fish balance in lakes to believe otherwise. Nets are expensive and wear out rapidly. The labor involved after the excitement of the first few catches becomes monotonous and usually very uncomfortable since much of the work must be done during miserable, cold weather. It seems so useless; when nature provides its own system of checks and balances free of charge.

I must hasten to say that this full development of a predator population would not be advisable in all circumstances. In the little farm fish-pond of one to five acres, the predatory activities of man can be substituted for natural predation. Larger lakes with their mixed assemblages of species, uncontrolled inflow of tributaries and often located in wilder, less populated regions cannot be managed with such simplicity. Certain trout streams with their simple populations of trout alone or trout and blacknose dace or some such association do not seem to benefit by predation. Other trout streams, however, are constantly filling up



to an ever greater extent with several species of sunfishes, perch, minnows and catfish, all competing with trout for the available food supply. There is little doubt that considerable predation would benefit the trout population in streams of this type. No overall statement can be made concerning the effect of predation on all lakes and streams. Each body of water is an ecological unit which must be studied for best results. A general statement can be made, however, that we have very much overdone predator control, often with disastrous results.

There is a mistaken idea widely held in Pennsylvania that inbreeding among fish of a lake is the cause of stunting rather than crowding and extreme competition. This is easily disproven. When stunted fish from an overpopulated lake are removed and released in a newly made lake with room and food they immediately resume growth. The full growth of fish also does not depend alone on an adequate food supply. If fish are crowded in a pool but given adequate food they still will not reach full size. For full growth apparently they need "lebensraum"

Certain trends in fishing that have developed during the last ten to twenty years have tended to increase the unbalanced condition in our lakes. Still-fishing with worms used to be one of the most pleasant recreations of boys aged from five to fifty. The purist who shunned any natural bait was the exceptional fisherman at that time. It seems to me that during recent years there are proportionately fewer worm fishermen and more purists. In some cases we have reached the rather tragic condition of a purist father forbidding his son to go worm-fishing. Rather than enjoy a perfectly natural, exciting pastime with a simple rod, line, hook and a can of worms, the boy must be trained in all the complexities of flycasting, plugging, spinning and a vast array of unbelievable lures a few of which a fish may actually take in his moments of mental weakness. As a worm fisherman the boy acted ecologically as a heron or a merganser, reducing to some extent

burgeoning panfish population. As a purist he takes game fish and thus adds to unbalance due to the lack of predation. There are still worm fishing boys and may the soul of Izaak Walton rise up and praise them. Let them graduate to the purist tribe after they have done their share of panfish fishing. There are still plenty of worms and thousands of acres of water that will be only benefited the more worm fishing is done.

In most of our perch and sunfish "bound" waters, however, the efforts of the worm fishermen, no matter how abundant, will have little effect. The state of unbalance has gone too far. In an eighty acre Pocono lake in one week's time approximately 16,000 perch were taken by fyke net in an attempt to restore good balance. All except ten of these perch were four to six inchers, severely stunted. It would take an army of worm fishermen to make much impression on a population such as this. More drastic measures are in order.

The fact that so many of our beautiful fishing waters are unbalanced should not make the fisherman give up hope of their reclamation, however. In many cases their reproductive capacity can be increased; perhaps we can even improve on nature and make them better than they ever were before.

Some of the techniques or tricks of this trade may be of interest. Don't try to apply them unless you know thoroughly the ecological character of the water concerned. Also many of the tricks are highly illegal unless done with the special permission of the Pennsylvania Fish Commission.

The toughest problem of all is reduction of fish populations. Netting with fyke nets and trap nets is expensive but is effective if enough of it is done. In the eighty acre lake previously mentioned the average length of perch has been increased by three inches in four years simply by removal of many thousands of excess population. The removal of perch spawn is fairly successful in some cases. In lakes in which the water level can be controlled an appreciable destruction of a year's perch spawn

can be accomplished by lowering the lake level for a few days just after the spawning period. Perch usually spawn in shallow water and the receding water leaves their strings of eggs high and dry to die in a short time. Where waters cannot be lowered perch may be induced to spawn in the tops of small trees that have been cut and thrown into the water. Perch like to entwine their strings of eggs around twigs. After spawning the tree tops can be lifted out onto land. The sunfish, blue-gill and crappie populations can be reduced by raking over their nets with a garden rake. One man with a rake can cover a lot of shoreline in a day. The job may have to be repeated several times during the summer since they spawn repeatedly. Bullheads often become too abundant and stunt readily. This species is more difficult to control but large numbers of newly hatched young can be taken in very shallow water in a hand net. They appear in clouds of several thousand, each group being guarded by an adult.

In some lakes the common or white sucker becomes a nuisance because of over-abundance. It adds little to the productivity of a lake since it is a stream spawner and its young tend to stay upstream until too large to be taken by the game fish. Sucker populations are easily reduced by fyke or trap netting them on their upstream spawning runs in the spring. This undertaking can become an efficient program from



two angles. The lake is relieved of an overload of suckers and those caught can be released in waters where sucker fishing is popular, especially near population centers. The short, high-backed chub sucker should not be confused with the white sucker in this work since it tends to spawn in lakes and its young are excellent forage fish for bass and pickerel.

Occasionally the forage fish populations of lakes (golden shiners in many of them) will be greatly reduced by over-populations of panfish. Rebuilding a population of shiners by stocking alone is difficult. They may be consumed about as fast as stocked. This condition can be helped by confining the stock behind screens in some cove of the lake. They cannot escape from the cove and other fish cannot get at them. But their young can move through the screens and over a period of years re-establish themselves in the lake. Such screens are subject to ice action and must be protected by rocks. The building of brush shelters in shallow areas of lakes often is of great advantage. Fish like this type of cover. Young bass like them especially. After a year the branches are usually heavily covered with a scum of diatoms, algae and protozoans upon which young fish feed. When placed along the eastern and southern wave swept shores they tend to stabilize bottoms and make otherwise very un-

productive areas highly productive.

Artificial lakes over a period of years tend to loose some of their initial richness. This is probably due to exhaustion of mineral content of the drowned and slowly rotting organic debris originally covered when the lake was made. Fertilization of the lake by simply broadcasting commercial fertilizer may help some but much of the fertilizer will be lost if the flow of water through the lake is at all strong. A better method is to draw down the lake if possible three or four feet in the autumn, spread fertilizer on the bare bottom and then sow rye grass. A well developed hayfield appears before freeze-up time. Then the lake may be refilled. This will produce the same fertilizing action as occurred in the early history of the lake and it may be continued indefinitely.

These are some of the management techniques which can restore good fishing in our lakes. There are many others and of course many more yet to be learned. Our lake fishing can be reclaimed and I feel sure that even with the present day fishing pressure we can have satisfactory fishing for all. In this day of many fishermen and too few attractive fish the lakes are our best bet. They stand up better than our streams. Streams don't wear well. They are too subject to ecological damage by flooding, pollution, ex-

cessive wading, etc. Lakes tend to resist these damages.

In conclusion may I give a prophecy which under present conditions may sound rather wild. Not far in the future our lakes will not only be sources of recreational fishing but also very important sources of fine protein food supply, more valuable by far than equal areas of good farm land. Compare the two, land and lake. Even in very dry seasons the life of lakes is not subject to drought. Floods play havoc with farm land and crops but they often actually enrich lake waters. Farm land must be cultivated with hard labor involved, lakes need little attention except to harvest the crop which is very pleasant work. Temperature changes are much more radical and detrimental to living stuff on land than in water. The growing season in many lakes actually continues throughout the year except for periods when the lake is covered with snow-covered ice. Also we can make more of them. Many a stream valley has old worn out farm land or scrub forest of little value. It is of little economic value as it now stands but it can be made into a highly productive lake. Why don't sportsmen's clubs buy some of these valleys and make lakes? Do a good job of construction and the result is a beautiful new lake, easily managed and highly productive.

Good Fishing.

SUSQUEHANNA SHAD

Inland Fisheries. At that time the shad were on the downtrend so fast that the good Colonel claimed it was all due to the canal feeder dam at Columbia about 10 feet in height. This had been constructed about 1840 to create a pond to connect the southern end of Pennsylvania Canal at Columbia with the northern end of the Susquehanna and Tidewater canal at Wrightsville. Colonel Worrall succeeded in having a fishway constructed and to install similar ones at Middletown and Duncan's Island. Five fishways later it was reported as a flop and shad catch in the Susquehanna was valued only at \$13,420 in an 1895 report.

(Continued from Page 15)

In 1896 the floating ice destroyed the dam at Columbia and many "feeder dams" were also demolished so that the river was clear of all obstructions up to Clarks Ferry, a distance of 80 miles.

The expected run of shad was disappointing and the following statement of a report in 1899 reveals "It is feared the prestige of the Susquehanna as a shad stream is entirely gone and cannot be revived unless the state of Maryland will abolish the use of pound nets, fishpots, and other destructive methods of taking fish and the mass of fishermen along the stream in Pennsylvania can be induced or compelled to abandon the fishpot, dam and basket."

Back when I came into the world in 1905 the first big dam was started at Holtwood and completed five years later, a 65 foot barrier to spawning shad which refused to use the fishway installed at that time.

N. R. Buller in 1913 designed a natural fishway approximately 40 to 50 feet wide and 600 feet in length, giving an easy slope from pond level above the dam to the river channel below. Pools were blasted out of the solid rock bed. This proved useless as a passageway and was damaged badly by ice floes in spring freshets. Although repaired by the Pennsylvania Water & Power Company, it was considered worthless in getting the contrary shad to use it.

When the Conowingo dam was built no fishway was calculated being practical so that ended all theories and experiments of how to get the fickle finny fish over the dam.

Rod and line fishing in the springtime for hickory shad and the later appearance of white shad draws sportsmen from far and wide, coming from the New England States, New York, big cities as Philadelphia, Baltimore and other places.

Garvin Ross, a close friend of mine and son of ex-Mayor Ross of Lancaster, was among the first of the anglers to enjoy the sport of catching shad on a lure.

Tom Loving of Maryland created the first "shad fly," a bucktail with a quill head and the double 00 drone, a metal lure, soon hit the sports shelves and proved successful.

Shad at the spawning cycle do not feed, but it was discovered they would hit at flashing objects in the water, being accustomed to gorging themselves on tiny fishes for three or four years on the ocean's bottom while growing to maturity. Shad roe seems to take precedence over the shad itself among most anglers who prize the roe shad and toss back the bucks.

The rocky bottom and swirling currents take a lot of tackle of those who line the banks and others who anchor boats out in the stream.

Fly fishing has become a great sport among these fishermen and some claim a greater thrill to tangle with a flashing shad than any other fish that swims.

Shad will probably always remain in the aura of mystery and be an enigma to man. Although they aren't supposed to feed I know of some fellows who caught them on worms, still-fishing in a dead water pool.

WHAT'S NEW IN FISHING BOOKS

By Hugh Johnson

It is a real pleasure to pick up a copy of *Lee Wulff's New Handbook of Freshwater Fishing* (J. B. Lippincott Company, E. Washington Sq., Philadelphia. \$2.95) and find that it is just as factual, concise and solidly practical as the original edition. In a field of writing that is notorious for its over-generous reminiscence and sagas of authors' own feats of angling derring-do, Lee Wulff's book is as refreshing as the first full sun of Spring.

Here are the fundamental mechanics and equipment of freshwater fishing, the basic knowledge necessary to the catching of all kinds of pond, lake and stream fish—all clean-cut, direct and *without* intrusion of autobiographical ramblings. It is that rarity in angling literature, a straight how!-to-do-it fishing book, a working tool, and for that reason most fishermen—beginners and experts—will find it eminently useful.

The new edition, just published in January 1952, is larger than the 1939 edition, and it is surprising to realize that so many new angling developments have come in during the past twelve years. Nylon, glass fibre rods, the light-rod-light-lure bait casting technique, plastic-material flies, American spinning, and other items down to and including new gadgets such as the handy little De-liar. They are all here in the new edition, together with new material on water temperature, lake lore and many other phases of freshwater fishing. An omission which I suspect is deliberate on the part of the author is any mention of the solunar theory. If you are interested in this theory you can buy Jack Knight's books and tables on the subject, but I agree with Mr. Wulff that it doesn't belong in a general fishing book which sticks so beautifully to the facts of fishing as does the *New Handbook*.

Ray Camp, Hunting and Fishing Editor of *The New York Times*, calls the turn when he writes in his Foreword to Lee Wulff's book: "Here you will not find the ramblings of a theorist, but the accumulated knowledge of a man who has fished waters ranging from Alaska and

Newfoundland southward. He has wet lines under every condition and combination of water, weather, temperature and climate, and has analyzed such conditions in terms of success or failure for the angler . . . In the years since this book appeared in its original form fishing has advanced, but so has its author, who has fished many new waters and re-visited many familiar ones. The changes in methods, practices and techniques have been faithfully recorded, and the second voyage of this volume should be even more successful than the first."

* * *

The main claim to fame of *The Fly and the Fish* by John Atherton (The Macmillan Company, New York, N. Y. \$5.00) is that the author is a professional artist who brings to the book his own drawings, and to his discussion of flies and color theory the discerning eye of the artist. Atherton's impressionistic theory of color and texture in flies as well as his artistic sensitivity to everything about him run through the book.

Other than the aforementioned special feature and the fact that it is a beautifully designed book, there is nothing one can say about it by way of stamping it as fundamentally different from other good books on fly fishing. And, for a book that runs no more than 200 pages, it seems to me to be over-priced at \$5.00, in spite of the fact that there are many good line drawings in it and two color-plates of flies.

If you are a nut on nymphs and nymph-fishing and feel as I do that there is much to be done in the literature of nymph-fishing in America, you may find Chapter XI of compelling interest. It introduces a series of very "buggy" nymphs as tied by Wendle Collins. They look very good to me and tying directions are specific and clear. In fact, I think John Atherton would really have had something if he had confined himself to a smaller, less pretentious book on nymphs and nymph fishing only. He obviously knows his stuff.

8 TROUT

THE DAILY CREEL LIMIT FOR 1952 SEASON

TROUT 8

The Editor's Angle

Dear Sir:

I was searching the ship today for something worthwhile to read and, much to my surprise, I ran across the September issue of the PENNSYLVANIA ANGLER. It is a fine magazine and I am looking forward to receiving it each month. Here is a dollar to insure myself from losing contact with my home state and fishing.

I particularly enjoyed Don Shiner's article, "Sing You Spinners" and hope to see more of it's type in future issues.

Incidentally, I purchased a complete spinning outfit in Genoa, Italy, last month at a fraction of the Stateside cost. This particular rig seems to have quite a few improvements over the models I have seen back home.

I am looking forward to many happy hours of spinning in the streams and lakes of Pennsylvania next summer.

DONALD L. SAVERCOOL,
PHSN USNR

Aboard U.S.S. F. D. Roosevelt,
Mediterranean Sea

We like hearing from the fellows aboard ship. We believe Don will want to read forthcoming spinning articles by the Old Master, Joe Bates, Jr., scheduled for an early issue of the ANGLER.

Dear Editor:

Enclosed my "buck" for a 2-yr. subscription to the PENNSYLVANIA ANGLER. This is a renewal as my present subscription expires with the December issue.

I still find the ANGLER the best of them all. I've been getting them since about 1935 and still enjoy them very much. Fact is, I have most of them on file for future reference. Although I missed 4 years during World War II.

Say, how about running some articles on "Natural Insects and their Imitations" by Charles M. Wetzel like you did in 1941. I am sure some of our younger anglers would be interested in them. I still find the articles very helpful in fishing and fly tying. Here's hoping you have more articles on fly tying in the future. Just about half the fishermen today are fly tyers of some sort. Keep up the good work!

STEVE HOFFER

Leechburg, Pa.

TWIN BOROUGH VETERANS ORGANIZE SPORTSMEN'S CLUB

Installation of officers highlighted a meeting of the newly organized Twin Borough Veterans Sportsmen's Club at Conemaugh.

Joseph Negrant was installed as President; John Horner, VP.; Edgar Colbert, Sec.; Joseph Bonk, Corres. Sec.; Ray Headrick treasurer; Maurice Johnson, Paul Captick and Anthony Simonich, trustees for one year.

The club meets the first Sunday of each month.

FEBRUARY—1952



Photograph by Ormal I. Sprungman

GROUNDHOG MAKES ANNUAL WEATHER OBSERVATION

This striking close up of old Whistle Pig was made when photographer's fishing partner dangled a squirrel-tail spinner over the "chuck's" hole to bring him out. Shutter was clicked as he sneaked out to watch the odd insect.

Dear Editor:

I just wanted to tell you that I know of no other sportsman's magazine which I enjoy as much as I do the PENNSYLVANIA ANGLER. It isn't cluttered up with a thousand and one advertisements of all kinds. The articles are also of the very highest type. There's very little that I miss, even to the most beautiful cover pages. The December number is outstanding.

One more thing while I am writing. I believe that if you would put a number plate after our name on the name plate, such as 1-'52 or 6-'52 we'd know when our subscription runs out.

R. H. ANKENY

Apollo, Pa.

Ed.—We hasten to inform Mr. Ankeny we are now placing the expiration date on new subscriptions. With thousands of subscriptions it will take us some time before all can be processed with the date on the name plate sticker.

Dear Sir:

The Editor's Angle, Dec. 1951, F. J. Waters quotes Jonah 1:17. If Mr. Waters will read St. Matthew 12:40 and I quote: "for as Jonas was three days and three nights in the whales belly; so shall the

son of man be three days and three nights in the heart of the earth."

Bill Wolf was not wrong in his first paragraph when he states Jonah was swallowed by a whale (ANGLER for 1951—"Are Fishermen Liars.")

FRED HINDMAN

Brookville, Pa.

Dear Sir:

Enclosed find check for \$1.00 to renew my subscription to the PENNSYLVANIA ANGLER. I would also like at this time to pay tribute to the work of State Fish Warden, Horace A. Pyle. During the past trout season, my son had a leave from Key West where he was stationed on a submarine. I wrote Mr. Pyle asking where my son and I could enjoy a little fishing. Due to Mr. Pyle's prompt cooperation we were able to enjoy several days together.

The ANGLER is improving, with more facts on fishing and less fiction. How about dividing the state into sections and give interesting material on each section?

EVERETT A. HORT

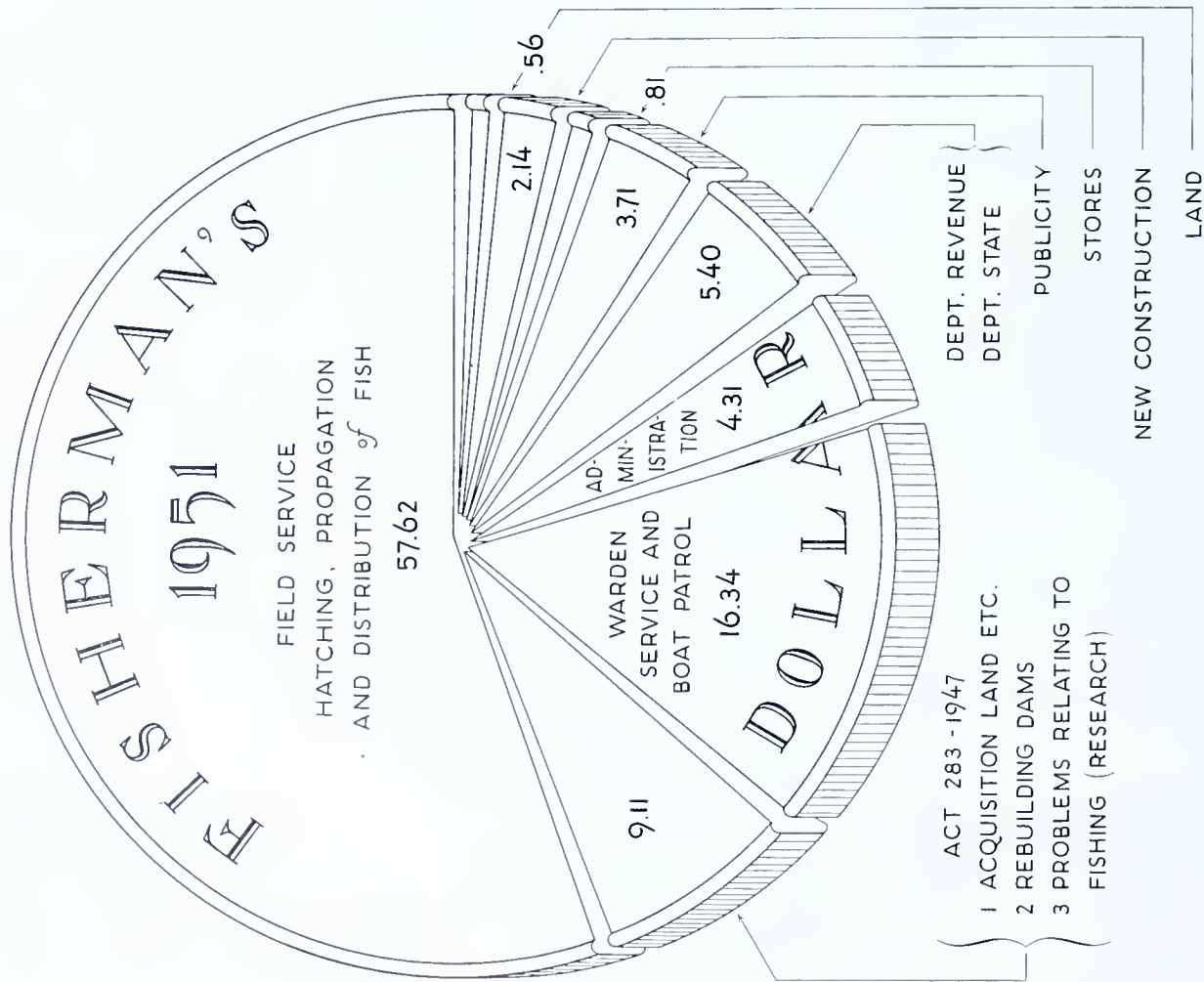
Fort Washington, Pa.

COMMONWEALTH OF PENNSYLVANIA
 PENNSYLVANIA FISH COMMISSION
 Harrisburg

Fish Stocked in the Waters of Pennsylvania—1951

Species	Approx. Size	Number	Total
Brook, Brown and Rainbow Trout	7" to 20"	2,133,805	
Black Bass	1" to 12"	673,851	
Catfish	5" to 12"	280,444	
Sunfish	3" to 8"	698,055	
Frogs (Embryo)		121,000	
Carp	10" to 20"	92,900	
Yellow Perch	Adult	199,018	
Minnows	1½" to 6"	130,166	
Pickrel	7" to 18"	1,365	
Calico Bass	7" to 11"	5,130	
Pike Perch	Adult	314	
Suckers	2" to 5"	64,654	
Goldfish		100	4,400,802
<i>Fry and Fingerling</i>			
Trout	Fingerling	3,467,100	
Yellow Perch	Fry	307,250,000	
Pike Perch	Fry	42,125,000	
Cisco	Fry	1,500,000	
Blue Pike	Fry	1,250,000	355,592,100
Grand Total			359,992,902

(Due to the extreme drought and low waters the 1951 Fall trout stocking program was suspended.)



FINANCIAL STATEMENT PENNSYLVANIA FISH COMMISSION CALENDAR YEAR 1951

BALANCE—January 1, 1951:

Cash	\$1,166,719.41
U. S. Treasury Certificates	109,000.00
	<u>\$1,275,719.41</u>

RECEIPTS—1951

Resident Fishing Licenses	\$1,285,382.45
Non Resident Fishing Licenses	60,072.95
Tourist's Fishing Licenses	17,950.25
Eel Chute Licenses	11.00
Lake Erie Licenses	2,302.00
Commercial Hatchery Licenses	2,260.00
Motor Boat Licenses	56,351.50
Fish Law Fines	32,729.00
Motor Boat Fines	3,255.00
Contributions for Restocking Streams	21,450.00
Sale of Publications	8,016.65
Sale of Unserviceable Property	164.95
Interest	12,270.13
Miscellaneous	262.47
	<u>1,502,478.35</u>

Total Funds Available\$2,778,197.76

EXPENDITURES—1951

ADMINISTRATION	
Salaries	\$38,441.25
Wages	3,094.64
Printing, Binding & Stationery	12,366.89
Materials & Supplies	722.69
Traveling Expenses	1,444.19
Motor Vehicle Supplies & Repairs ..	631.80
Freight, Express & Cartage	63.88
Postage	2,591.00
Telegraph & Telegraph	1,613.18
Repairs	302.35
Rent of Real Estate	31.67
Insurance, Surety & Fidelity Bonds	297.72
Other Maintenance Service & Expenses	267.92
Equipment & Machinery	1,442.52
	<u>\$63,311.70</u>

WARDEN SERVICE	
Salaries	\$139,737.50
Wages	19,808.67
Fees	90.00
Printing, Binding & Stationery ..	118.89
Materials & Supplies	1,214.34
Traveling Expenses	72,696.66
Telephone & Telegraph	4,214.52
Repairs	35.02
Rent of Real Estate	20.00
Rent of Equipment	80.00
Insurance, Surety & Fidelity Bonds	738.90
Other Maintenance Services & Expenses	20.00
	<u>\$238,774.50</u>

BOAT PATROL SERVICE	
Materials & Supplies	\$243.00
Repairs	95.96
Rent of Real Estate	117.00
Insurance, Surety & Fidelity Bonds	307.69
Equipment & Machinery	390.00
	<u>\$1,153.65</u>

FIELD SERVICE	
Salaries	\$14,715.75
Wages	9,724.86
Printing, Binding & Stationery ...	531.57
Materials & Supplies	1,883.15
Traveling Expenses	2,385.30
Motor Vehicle Supplies & Repairs ..	824.28
Telephone & Telegraph	2,551.29
Light, Heat, Power, Water & Fuel ..	458.91
Repairs	56.95
Rent of Equipment	75.00
Insurance, Surety & Fidelity Bonds	137.93
Equipment & Machinery	1,305.32
	<u>\$34,650.31</u>

HATCHING SERVICE	
Salaries	\$213,044.75
Wages	210,295.23
Fees	200.00
Printing, Binding & Stationery	509.05
Food & Forage	237,939.03
Materials & Supplies	43,276.41
Traveling Expenses	11,603.55
Motor Vehicle Supplies & Repairs ..	23,157.62
Freight, Express & Cartage	121.88
Postage	1,176.11
Telephone & Telegraph	2,989.07
Light, Heat, Power, Water & Fuel	27,555.28
Repairs	9,009.23
Rent of Real Estate	1,494.00
Rent of Equipment	2,097.48
Insurance, Surety & Fidelity Bonds	2,620.64
Motor Vehicles	9,424.22
Equipment & Machinery	15,314.15

EDUCATION & PUBLICITY

Salaries	\$7,204.75
Wages	3,748.17
Fees	3,961.50
Printing, Binding & Stationery	35,723.64
Materials & Supplies	690.40
Traveling Expenses	1,536.50
Postage	1,335.90
Repairs	10.70
Rent of Real Estate	150.00
Insurance, Surety & Fidelity Bonds	31.89
Other Maintenance Services & Expenses	46.11
Equipment & Machinery	110.42
	<u>\$54,549.98</u>

CONSTRUCTION (PYMATUNING)

Wages	\$24,319.60
Materials & Supplies	5,764.92
Motor Vehicle Supplies & Repairs ..	1,151.63
Repairs	123.08
Insurance, Surety & Fidelity Bonds	23.63
	<u>\$31,382.86</u>

Refunds & Repayments of Receipts\$199.00

STORES

Materials & Supplies	\$11,484.99
Motor Vehicle Supplies	200.30
Equipment & Machinery	254.10
	<u>11,939.39</u>
Land Purchased	8,241.00

PENNSYLVANIA DEPARTMENT OF REVENUE

(Bureau of Miscellaneous Licenses)\$55,070.24

DEPARTMENT OF STATE

State Employee's Retirement Board)\$24,256.25
(Expenditures made in accordance with Act No. 283—1947)

PROBLEMS RELATING TO BETTER FISHING—RESEARCH

Salaries	\$8,459.25
Wages	43,787.76
Printing, Binding & Stationery	477.45
Materials & Supplies	8,134.08
Traveling Expenses	10,099.46
Motor Vehicle Supplies & Repairs ..	1,467.91
Freight, Express & Cartage	2.00
Telephone & Telegraph	78.30
Light, Heat, Power, Water & Fuel ..	1,439.34
Repairs	138.53
Insurance, Surety & Fidelity Bonds	215.00
Other Maintenance Services & Expenses	12.00
Motor Vehicles	1,678.00
Equipment & Machinery	3,259.86
Subsidies, etc.	250.00
	<u>\$79,498.94</u>

ACQUISITION OF LAND & FISHING WATERS

Wages	\$15,367.04
Fees	225.00
Materials & Supplies	194.71
Traveling Expenses	3,309.67
Insurance, Surety & Fidelity Bonds	34.51
Easements, Rights of Way	625.00
Motor Vehicles	1,678.00
Equipment & Machinery	28.05
Land	1,730.18
	<u>\$23,192.16</u>

REBUILDING TORN OUT DAMS

Fees	\$9,519.13
Contracted Construction	21,541.05
	<u>\$31,060.18</u>

BALANCE—December 31, 1951\$1,309,089.90
*\$1,200,089.90 Cash
109,000.00 U. S. Treasury Certificates

\$1,309,089.90

Act No. 283—1947, provides that effective the first day of January 1948, twenty-five cents (25c) from each resident fishing license fee shall be used exclusively for (I) The acquisition of land and fishing waters (II) The rebuilding of torn out dams, and (III) The study of problems related to better fishing. Expenditures during the calendar year are shown in detail above.

STATEMENT OF EARMARKED FUND

Accrued	
1948	\$147,862.50
1949	154,810.80
1950	154,654.39
1951	160,672.80
	<u>\$618,000.49</u>
Expended	
1948	21,358.83
1949	34,435.89
1950	69,131.37
1951	133,751.28
	<u>258,677.37</u>



HERTZ
The World's Largest Fly Fishing
and Tackle Store
New York, N.Y.
• Importers •
• Distributors •
• Retailers •

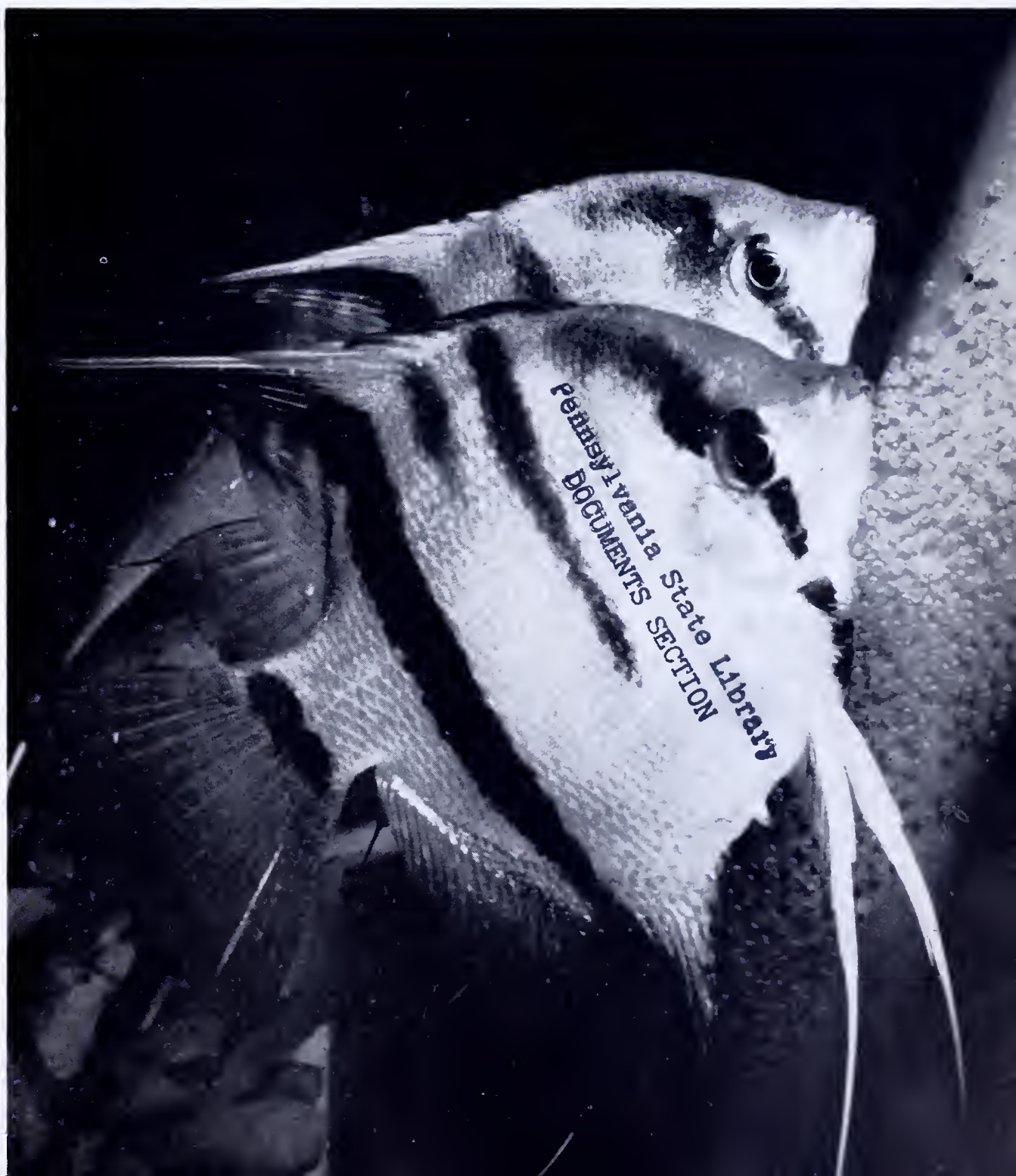
Handwritten notes and sketches, including a small diagram of a fly and some illegible text.



MUSTAD-VIK
100
N. 14
MUSTAD-VIK
100
N. 14
MUSTAD-VIK
100
N. 14

PENNSYLVANIA

Angler



Pennsylvania State Library
DOCUMENTS SECTION

MARCH

1952

P38.31

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MEMO

TO ALL FISHERMEN:

- (1) No fishing of any kind allowed in any Pennsylvania waters from---

MIDNIGHT, MARCH 14

TO

5:00 A.M., APRIL 15

Except in rivers, lakes or ponds not stocked with trout.

- (2) The daily creel limit of trout for the 1952 season commencing at 5:00 A.M. April 15 is:

8 EIGHT 8

**COMMONWEALTH OF
PENNSYLVANIA**

HON. JOHN S. FINE
GOVERNOR

*

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FISH COMMISSION**

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PENNSYLVANIA
Angler

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MARCH—1952

VOLUME XXI, No. 3

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The Cover . . .

SPAWNING ANGEL FISH are beautiful, exotic subjects for the camera. Favorites of home aquarium hobbyists, they require expert care and knowledge so full cycle of life can be completed. See story by DeWayne Campbell, Fisheries Biologist, Pennsylvania Fish Commission, on Page 4. Photo by George H. Gordon, Official Photographer, Penna. Fish Commission.

BACK COVER—Big tree in lowlands symbolize "V" for Victory over Winter as the ice goes out and stream again tumbles and roars over riffles on its way to the sea.

—Photo by Bob Motter

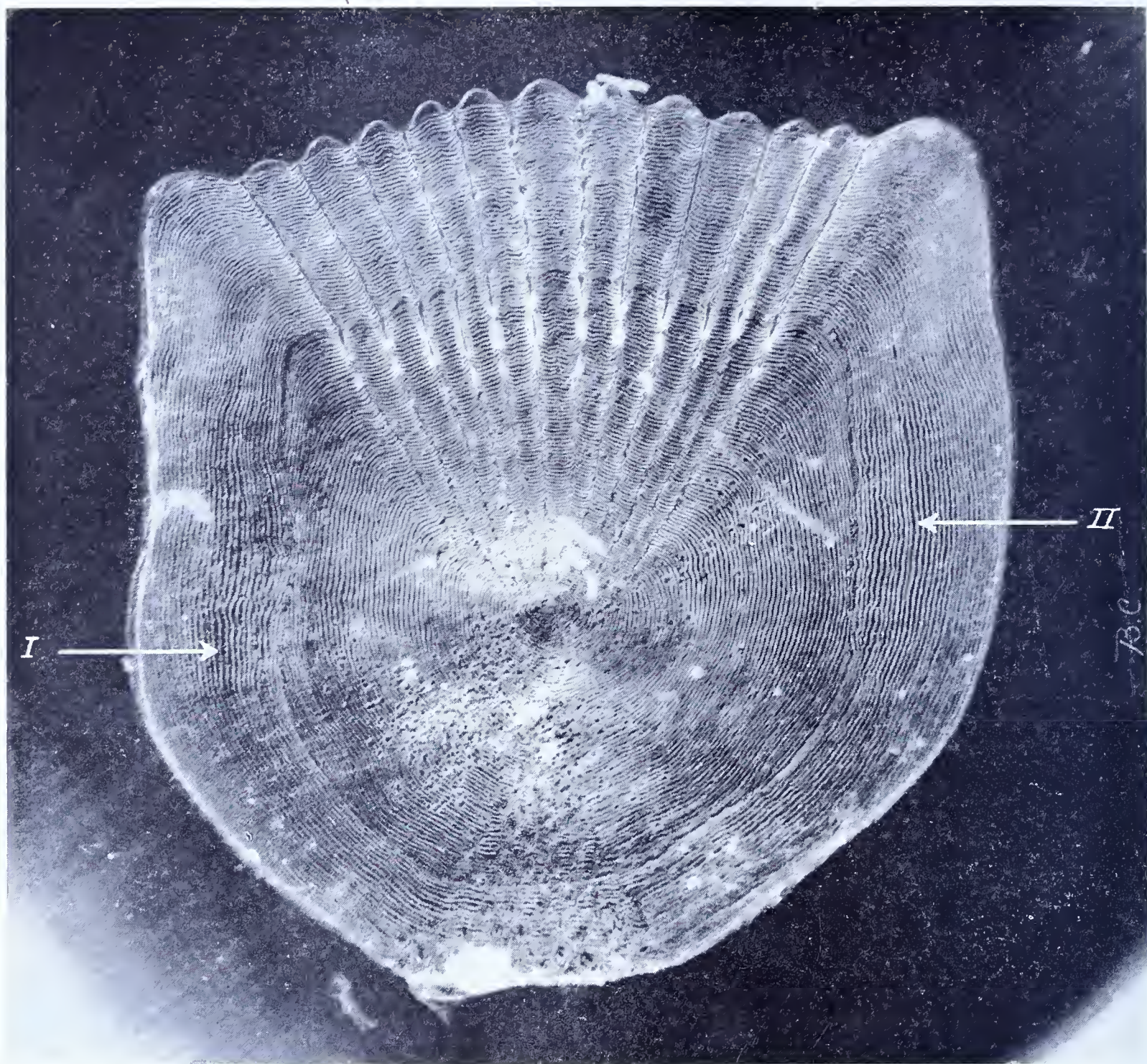


George W. Forrest, Editor

1339 East Philadelphia Street, York, Pa.

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▲ Fig. 1. A black crappie scale. Numbers I and II point to circuli. These circuli are periodic additions to the scale.

Photos by George H. Gordon
Official Photographer

Fish Scales Reve

By OTIS ROBBINS,

Fishery Biologist, Pennsylvania Fish Commission

ALL fishermen have at one time or another encountered fish scales, but few realize the importance scales can play in the correct management of a body of water. Most of our completely fresh-water fishes have scales. The cat-fish family is such an exception in having no scales. The information

obtained from fish scales aids in the proper management of a lake for fishing. Just why are they collected and how is the information extracted from them?

Scales are formed during the first few weeks of a fish's life and stay with the fish throughout life. No new ones are added as the fish

grows except to replace those destroyed or removed by accident. These new scales are regenerative and are not used in analysis because they show growth only from the time the new ones were formed.

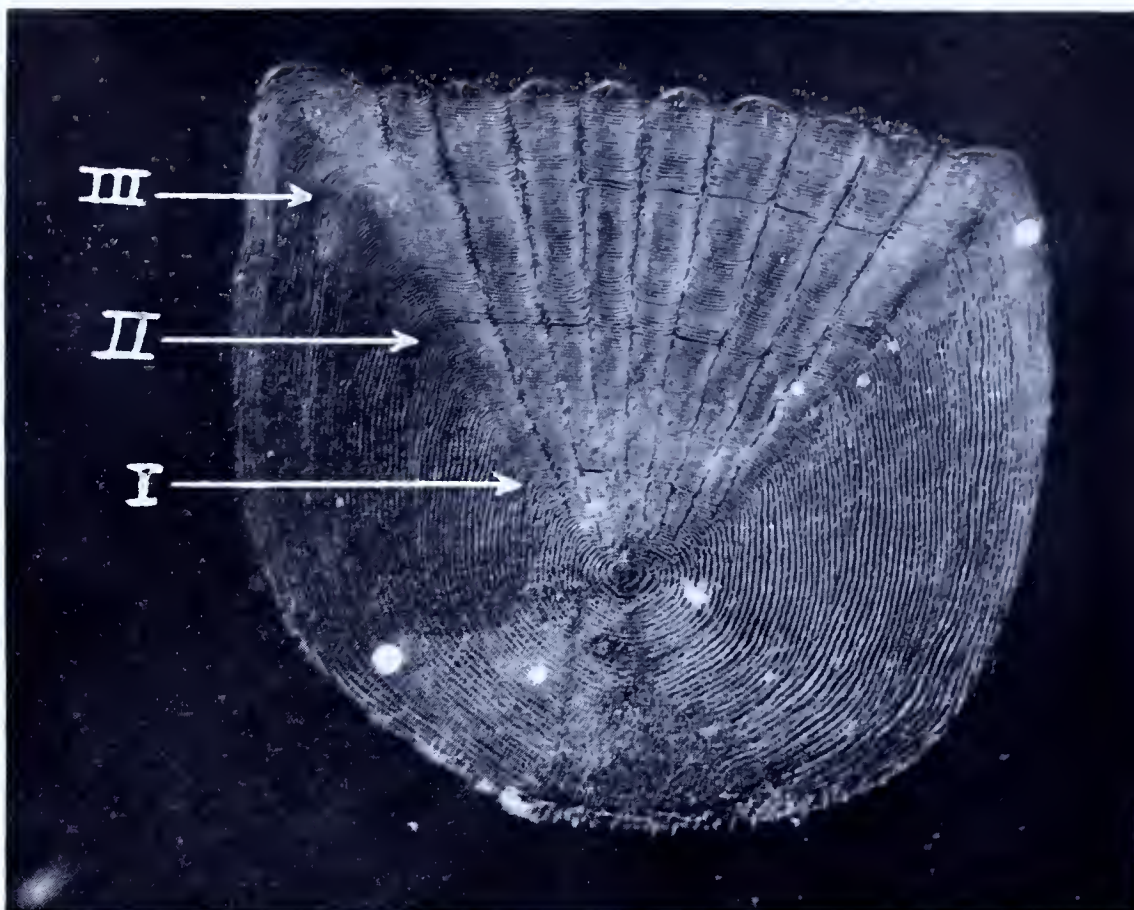
A scale's growth is similar to that of a tree. Like a tree, fish

scales start from a center and grow outward; however, unlike a tree, each circle does not represent a year's growth. Periodically, small circular ridges are added to the scale. These ridges are called circuli (Figure I). The distance that separates these circuli is in direct relationship with the speed of the fish's growth. As most fishermen know, fish are usually less active in winter, and they do not feed as much; consequently, these ridges or circuli are often incomplete and crowded. In the spring with the increase of feeding and growth, the circuli formed are clear and complete and spaced further apart. The group of circuli or ridges of winter growth form what is known as an annulus (Figure II). This annulus resembles the growth rings of a tree and is counted in somewhat the same manner, one year of growth for each annulus.

Considerable experience is required in reading scales because injuries, spawning periods and growth-retarding factors tend to produce only partial annuli.

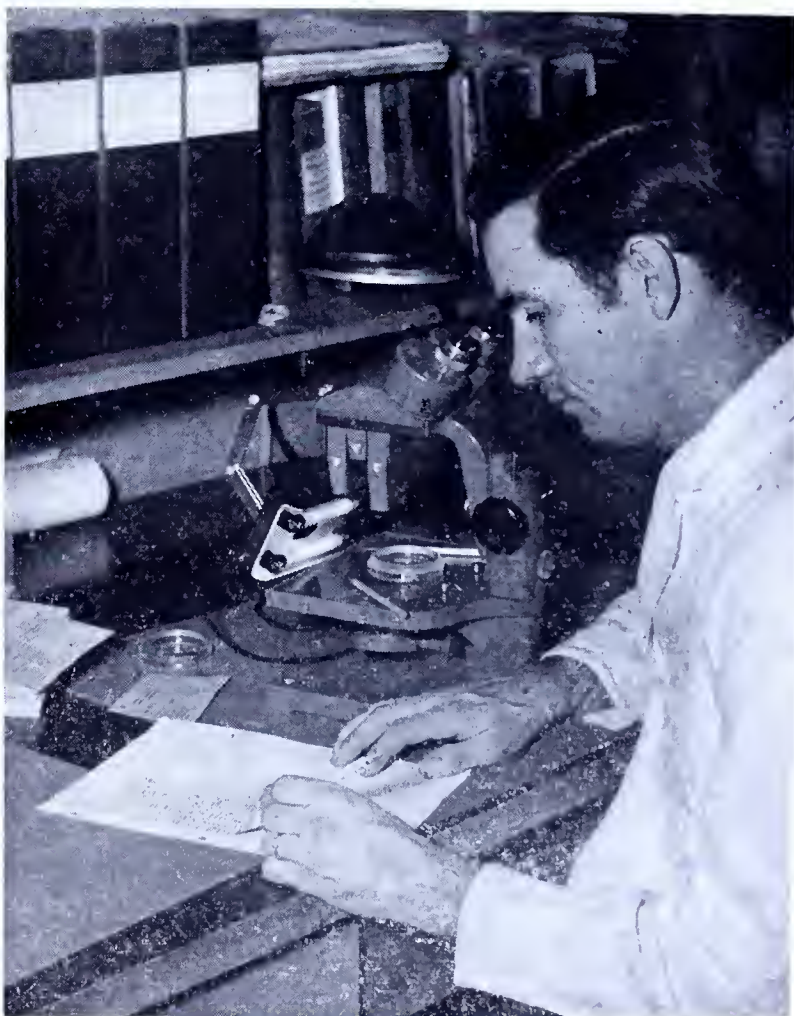
Scales are examined under a microscope or on a scale projector to determine the age and obtain other pertinent data. Some of the information that can be gained from scales is: how old the fish is, how much it grew each year of its life, how it compares to others of the same species, length of time needed to grow to legal size and how conditions in the body of water affected it.

The information taken from a



▲ Fig. II. Scale from a bluegill. Numbers I, II and III point to the three annuli. This fish was in its fourth year of growth.

▼ Fig. III. Information from the scale reading is recorded and is compared with the data from other fish of the same species.



Age and Growth

number of fish scales along with other known facts aids in a wise future management program for that body of water from which the fish were removed. The knowledge of age and growth is just one of the tools which aid in proper management of fish and such facts will contribute to better fishing.



Fishes, not unlimited

By DeWAYNE E. CAMPBELL, Fisheries Biologist

Pennsylvania Fish Commission

All Photos by George H. Gordon, Official Photographer

The photographs accompanying this article of spawning angel fish could never have been taken under alkaline water conditions. Though these fish grow large and beautiful under very high pH influence, the full cycle of life activities can only be completed when the water is brought to an acid state.

THE Pennsylvania Fish Commission frequently finds that it cannot concur with requests by anglers for the planting of certain fish species in new waters. Why is this so?

The inherited characteristics of the requested fish offer two very plausible reasons for refusal to introduce it into waters where it does not already exist. First, the species requested may succeed much too well in the new waters. A prime example of this would be the crappie in some Pennsylvania waters. In a short period of time the crappie would dominate to the detriment of other more desirable species. Second, it may be known that the fish requested would fail completely. This would result only in the loss of time and money.

Probably the least understanding and the greatest misunderstanding occur in the latter case, in which the species would fail to establish itself. All fishes have certain requirements in the form of

cover, food, temperature, chemical conditions, etc. These requirements vary with the species. General requirements such as these are well known for all of our major game species. Thus, brook trout would be refused for stocking in a bass stream and vice versa. Nevertheless, although the general requirements for a fish might seem to be satisfied by the conditions of the new waters, there often arise situations which would make it appear that the general conditions are not well known at all. These situations appear as exceptions to the general rules and are not completely understood.

The use of the word "tolerance" has been avoided, as it tends to infer the maximum and minimum limits of survival. Fishes frequently will tolerate the new conditions to which they are subjected and apparently do well. However, the fish for a number of reasons may not reproduce to the extent of creating a practical population for angling returns. In some cases it may not reproduce at all under the changed conditions surround-

ing it. These factors which prevent the successful increase in population of a species to its utmost (aside from the decimating factors of disease, predation, etc.), might be termed limiting factors.

These factors are important to the Pennsylvania Fish Commission's management program. Good management requires more than water where a species will exist; *the fish must thrive!!* Stocking is an expensive business, and we must, with certain exceptions, expect the water to carry its share of the production burden. A fish hook at best is a poor tool for the harvesting of a healthy crop of fish. On the other hand, since this is true, it requires a healthy crop of fish to provide a satisfactory fish for the hook. Thus, a fish species which does not properly fill its niche in the aquatic population would not be expected to fill the creel.

For any of the above reasons and for many others, it behooves the persons responsible for the management of public waters to know beforehand the results of



introducing new fishes to strange habitats. In the instances of game fishes requested by sportsmen throughout the Commonwealth, these results can usually be predicted by the many life history studies conducted for each game variety. Experience, too, makes the finest of teachers. It would be a rare thing, indeed, for the Fish Commission to receive a request for the stocking of a fish with which it had not had considerable experience. Nevertheless, the limiting factor remains a phantom element, even with the major game species which we know so well. The Commission's experiences with this element would fill a sizable book; only a few of the examples can be offered here. The limiting factor may be any phase of any one of the general requirements mentioned previously, or it may be any combination of one or more of the other general requirements.

As a case in point, consider just one small part of the general requirement, "chemical conditions." Under this heading would fall the oxygen content, carbon dioxide, pH, etc. Let us choose the pH. The "pH" of water refers to the hydrogen ion concentration of the water and is an index to the acid or alkaline nature of the water. We know that the rainbow trout of our

hatchery production cannot be stocked with impunity into all waters of the state. Rainbows when placed in waters which are more acid than those in which they were raised often suffer a high mortality; whereas, brown trout and brook trout remain unaffected by any such changes. The common bullhead cannot spawn successfully in the very alkaline waters of some of the state hatcheries. In the accompanying photographs is shown a pair of Angel Fish, *Pterophyllum eimekei*. These exotic aquarium fishes lend themselves remarkably well to the study of such limitations as pH. Many of these lovely little creatures are maintained throughout the hatcheries of the state for study and display. These fish not only live in alkaline waters but apparently thrive, growing large and beautiful. These fish have been thus maintained for years; yet, until a buffer solution of monobasic

sodium phosphate combined with dibasic sodium phosphate was found which would effectively lower and maintain the pH at an acid level, the pictured results could not occur.

In the above examples only the most simple cases are presented. It is immediately apparent that in these the limiting factor is tied in with the pH, but much work remains to be done before we may say *how it is a limiting factor*. More commonly, however, such fisheries problems involve a combination of two or more factors.

This article points to the fact that much mystery still surrounds the most effective use of our fishery resources. This remains to be patiently unraveled by the most critical and tedious type of work, research. On the sound basis thus derived it will be possible to manage each body of water to produce the greatest amount of good for the most anglers concerned.

BASS POND

MYSTERY

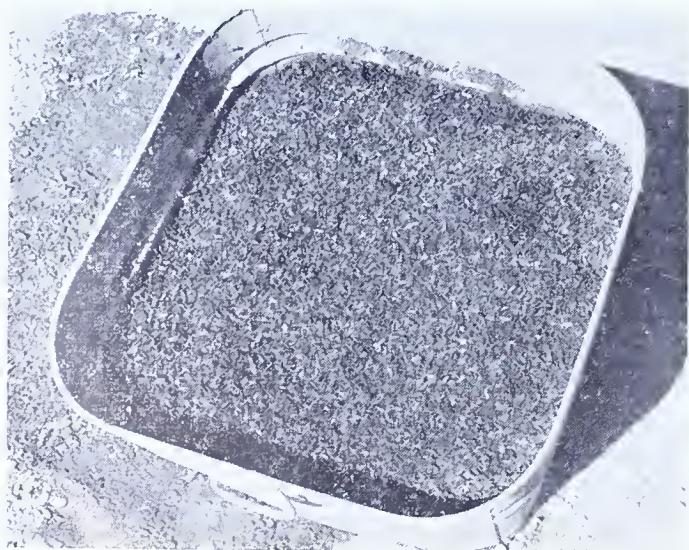
By DEWEY SORENSON,

Superintendent, Pennsylvania State Fish Hatchery at Bellefonte



▲ Bottom of pond was literally covered with cress bugs. It was no task to pick them up by the handfuls.

▼ One of the many tubs of crustaceans removed from the pond.



AN unexplainable occurrence has happened at the State Fish Hatchery at Bellefonte. During the summer months of last year, the hatchery personnel were unable to explain why a three acre bass pond didn't produce its usual crop of aquatic grasses. Instead, the water became dark and murky, changing from a green to a gray color periodically. The remnants of grass that did grow were soon mysteriously cut off and came floating to the surface. Here the grass decomposed and furnished an organic fertilizer for the water.

The question foremost in the minds of the hatchery men was, "What is cutting the grass?"

As far as could be ascertained by visual inspection, the pond was no different in character this year than it was in previous years. On October 3, the pond was drained and the men soon knew what caused the difference. The drainage ditch was clogged with "cress

✓ Close-up of cress bug (*Mancasellus brachyurus*)



bugs" (*Mancasellus brachyurus*), the little crustaceans which resemble the terrestrial sow-bugs. The mesh of the seine was soon plugged; it became difficult to drag the seine; it became difficult to sort the fish; everything was literally alive with the crawling mass. A view of the drained area showed turbulent piles of bugs frantically seeking the dampest spots. All of these little crustaceans, but only a few forks-full of grass. Previously, in the same area, huge piles of grass were removed each fall.

What caused this sudden increase in the population of *Mancasellus*? Was it due to a natural periodic rise and fall of population such as is found in the seventeen year locust or cicada? Was there some unknown change in the pond that wasn't noticeable after a visual inspection? A positive answer can not be given to any of these questions. The only two factors that were different from other years, since the cress bugs had been present in moderate numbers for fifteen years, are that they were there this year in unaccountable numbers and the grass was conspicuously absent. Can we link these two factors together and say the crustaceans removed the grass? It certainly is something to consider.

The presence of cress bugs in the water certainly did not have a negative value. In previous years, eight or ten men were employed for four days removing fifty to seventy-five truck loads of grass. This year, the *Mancasellus* apparently did all the cutting and removing which was to be done. All this activity did not harm the production of fishes. An unusually large number of bluegills was removed plus the usual quota of bass. The young bass seemed to thrive on the infestation since an examination of their stomach contents showed principally cress bugs.

An interesting history is found in the introduction of the cress bug in Pennsylvania. Back in the days of handle-bar mustaches and spittoons, watercress was placed on the bars of saloons for the same reason pretzels are today. From this, a thriving industry grew in the limestone regions of the states

south of Pennsylvania. Watercress was raised and shipped to New York as a delicacy. Presently, a wealthy Pennsylvanian moved the industry to Cumberland County to be nearer the markets. Imported with the first watercress was *Mancasellus*. Prohibition put an end to the watercress trade, but the cress bug was here to stay.

Hatchery men thought that these small animals might serve a purpose as trout food, so they were introduced into trout ponds. Their value as food for trout is now questionable. Experiments in the Bellefonte Research Laboratory show that these small animals are not a preferred diet. The trout do not grow well and will not eat them if other natural food is present.

Regardless of whether or not they are on the trout's menu, the fish culturists at the Upper Spring Creek Hatchery were thankful for their presence this year.

➤ A view of pond as cress bugs left it. Note the absence of grass.



▼ As pond normally would look other years. Note the many truckloads of grass.



DUMAN'S DAM

An Example of Poor Fishing Caused By Unbalanced Fish Populations

By GORDON L. TREMBLEY

Chief Aquatic Biologist

Pennsylvania Fish Commission

“WHERE ARE ALL THE BIG ONES?” This was the question raised by over a hundred spectators gathered to watch the draining of a small pond by the Pennsylvania Fish Commission’s fish management unit in Cambria County last October.

Duman’s Dam, size six acres, is one of the very few dams open to public fishing in this area. It has been quite heavily fished in recent years, with poor results. The existing dam required a new spillway and repairs to the embankment with the result that plans were developed by the engineering staff of the Pennsylvania Fish Commission which allowed for the enlargement of the water area from six to twenty acres. Since draining was necessary to make the repairs, it was decided to collect and weigh the fish removed to determine what poundage of fish per acre could be expected in a water of this type.

When the job had been completed, the fish were hauled to the Reynoldsdale Hatchery where they were weighed and estimates made of the numbers of different kinds. The results were most striking. This little pond produced 1,100 pounds of fish or roughly about 183 pounds per acre (plus another hundred pounds of a miscellaneous assortment of sinkers, hooks, plugs and the like). This is a relatively high production of both fish and tackle; but wait

until you hear the rest of the story.

By estimation, about 75% of the total yield (by numbers) was comprised of golden shiners, black crappie and sunfish. The remaining 25% were bullheads, yellow perch, suckers, minnows, darters and a single carp. Crayfish were abundant but could not be weighed.

The most outstanding observation was that about 99% of the total number of fish removed were under five inches in length. There were a few black crappie and bullheads from 8 to 10 inches, about a dozen suckers 9 to 11 inches long, as well as the one big carp. Thus of the thousands of fish living in Duman’s Dam, less than thirty would be considered worthy of taking home. No wonder the fishermen had a hard time.

From the standpoint of both the fisherman and the fishery biologist, the crop of fish in this pond was practically worthless. What was wrong? Why was so much of the total poundage tied up in small fish? The answer lies in one of the basic principles of pond and lake management. An acre of water, like an acre of cattle pasture, can produce only a certain poundage of meat. In water this poundage can be represented by a lesser number of fish of all sizes or a greater number of fish of small size. Obviously, Duman’s Dam was an outstanding case of the latter. Too many species of fish and the

wrong combinations of fish species probably played an important part in the downfall of this dam.

Since the Pennsylvania Fish Commission had stocked neither black crappie nor carp here, it is assumed that these two were the additions of thoughtless fishermen. The introduction of the black crappie probably served only to aggravate the condition of too many small fish; for this species is noted for being an offender in this respect in other Pennsylvania waters.

Future management plans for the new water area call for (1) eradication of the remnants of the old fish population before the lake is filled, (2) the introduction of a limited number of species designed to produce big as well as little fish and to prevent the old hodgepodge of too many species and (3) periodical test netting and other biological checks to determine the status of the fish populations in the new lake.

And so an old Duman’s Dam with its unbalanced fish population is dead and a new lake—larger and better—is soon to be born. If it is found, through future management studies, that further plantings of existing or new fish species are needed, the Pennsylvania Fish Commission will take care of this. Let the fishermen who visit this lake concentrate on taking fish out—it’s really quite a job—rather than putting more in.

Streams, Lakes and Ponds

owned by The Commonwealth of Pennsylvania

Open to Public Fishing

Included in a report of the activities of the Pennsylvania Fish Commission delivered by the Honorable C. A. French, Executive Director, to the Annual Convention of the Pennsylvania Federation of Sportsmen's Clubs, on Friday Feb. 15, Mr. French reviews some very important accomplishments which should be of extreme interest to the fishermen of Pennsylvania.

"Since the last meeting of the Federation"—Mr. French reports, "The Pennsylvania Department of Forests and Waters and the Pennsylvania Fish Commission have signed an agreement which will permit the Fish Commission to stock and manage any of the approved trout streams located on State Forests and Waters Department lands. It is understood that the stocking and management of these waters by the Fish Commission will not, in any way interfere with the program of the Department of Forests and Waters."

"At the present time the Fish Commission is stocking five hundred and thirty-four (534) miles of approved trout streams in Forestry Areas owned by the Department of Forests and Waters. In addition to the trout streams there are 15,942 acres of lakes and ponds on Forests and Waters property which the Fish Commission will be permitted to stock and carry on its fish management work."

"At the last meeting of the Pennsylvania Game Commission, action was taken by that Department which permits the Fish Commission to stock all approved trout streams flowing through game refuge areas; and that the approved and stocked streams on these refuge areas shall be open to public fishing with "Fishing Permitted" signs to be posted by the Game Commission but only during the open trout season from April 15 to July 31 inclusive. There are at the present time two hundred and eighty-seven (287) miles of approved trout waters on Game Commission refuges. In addition to

this stream mileage, the Game Commission also owns eleven hundred and seventy-four (1174) acres of lakes and ponds, eight hundred and ninety-one (891) acres of which are stocked by the Fish Commission."

"The overall picture of approved trout waters located on lands owned by the Department of Forests and Waters, the Pennsylvania Game Commission, the Pennsylvania Fish Commission and the United States Government includ-

Summary according to Fish Commission records of the waters owned in Pennsylvania by the Department of Forests and Waters, Game Commission, Fish Commission, and Federal Government including the Allegheny National Forest. This is as of February 15, 1952.

Total number of miles of approved trout waters	1248
Total number of miles of approved waters stocked with takable trout by the Fish Commission	966
Total number of smaller tributary streams not approved for takable trout	1215
Total number of miles of smaller tributary streams stocked with fingerling trout in 1950 or 1951	486
Total number of acres of ponds and lakes	20,136
Total number of acres of ponds and lakes stocked by the Fish Commission ..	18,592

ing the Allegheny National Forest, sums up to a total of twelve hundred and forty-eight (1248) miles. Of this total the Fish Commission is presently stocking nine hundred and sixty-six (966) miles with legal size trout. The remaining waters not being presently stocked are so located in remote forest areas which makes them inaccessible with distribution equipment. Under the Fish Commission's program and in addition to the stocking of legal size trout, the Commission is regularly stocking some four hundred and eighty-six (486) miles of tributary streams in these areas, with fingerling trout."

"Of the 20,136 acres of lakes and ponds owned by the aforementioned Department: and Government Agencies, the Fish Commission regularly stocks 18,592 acres."

MYTHOLOGY OF THE AMERICAN EEL

KEEN BUSS, Biologist,

Pennsylvania Fish Commission

THROUGH the classic investigations of the Danish biologist Johannes Schmidt, all of us are now familiar with the breeding habits of the American eel. Before the turn of the twentieth century, before Schmidt published his work, imaginations conjured up all sorts of origins for the eel.

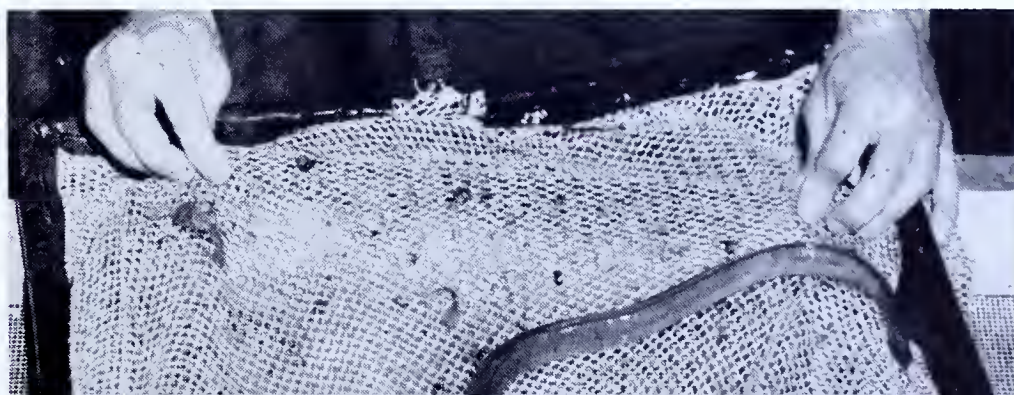
Because of the lack of mature genital, or sex organs, men of ancient civilizations were puzzled and left without an explanation as to how the eel reproduced. Aristotle, who observed that eels never possessed ripe milt or ova, contended that "eels must be derived out of the bowels of the earth."

Pliny, the Roman naturalist, followed with the explanation that the eels had no sex and procreated themselves by rubbing against rocks, and the fragments thus removed came to life.

Another author was just as certain when he stated that the origin of the eel was from the dew of May mornings. Still other writers claimed they developed from small beetles, or that they originated in the gills of other fishes.

It wasn't many years ago that scientific journalists declared that eels were hermaphroditic, contain both male and female sexes.

These statements should not be thought of as ridiculous ideas of ancient people, when most of us need only stop to recall that our grandparents told us that eels originated from the hairs of horses' tails which had fallen in water!

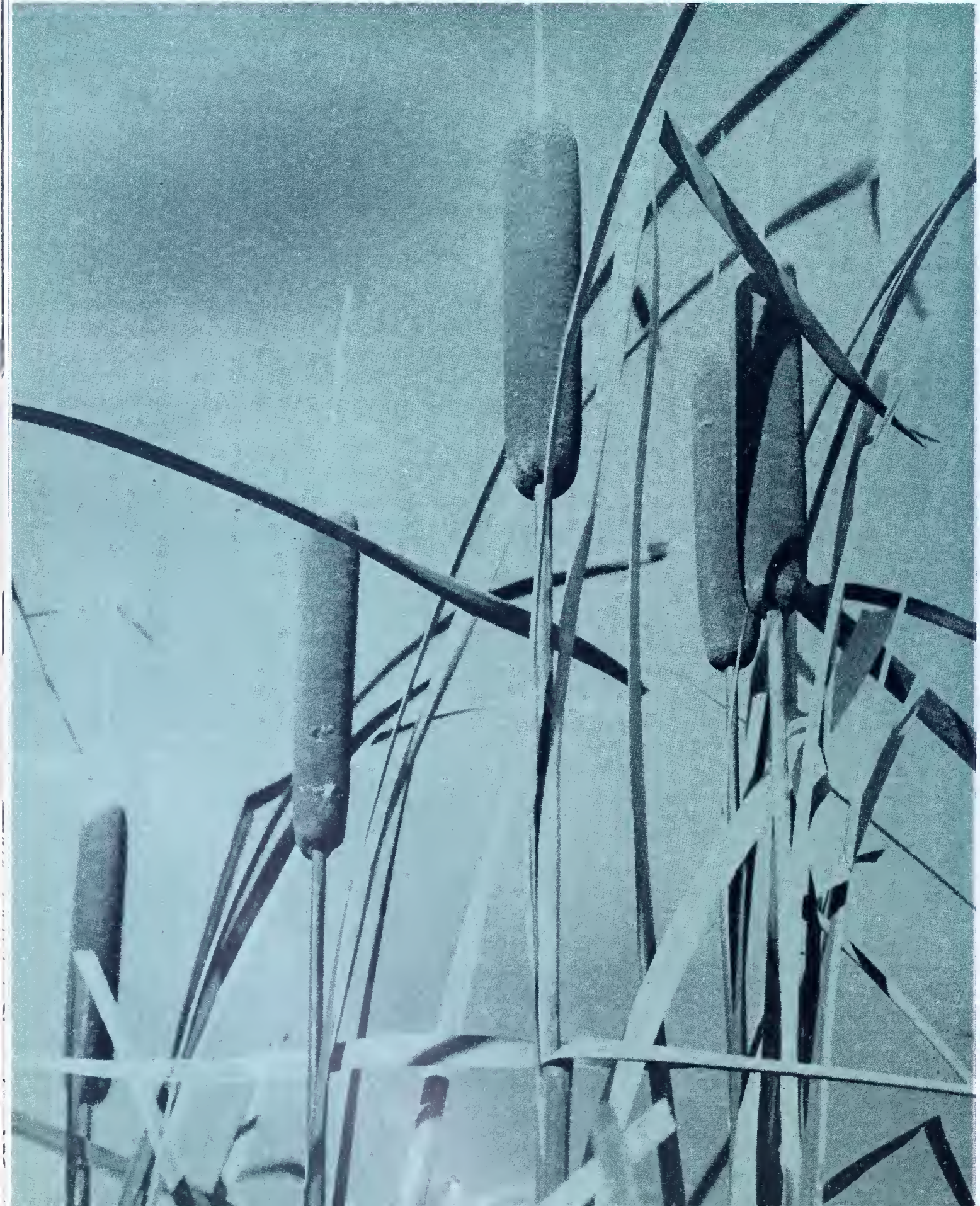


The Strength of the

Cattail

Though outwardly familiar to all anglers, the cattail offers a surprising illustration of strength with lightness to anyone who dissects it with a razor blade.

Bob Motter photo



Ages before man's development of engineering science, Nature produced the "patent model" for an airplane wing in the Cattail, familiar plant to all anglers on Pennsylvania ponds, lakes and streams.

By EDWIN WAY TEALE

*Distinguished naturalist and author of the new book,
"North With The Spring"*

Photographs by the author unless otherwise credited.

*Reprinted from Natural History magazine by permission of the
American Museum of Natural History.*

WHEN gusts sweep across a cattail marsh on a windy day, the slender green leaves twist, flutter, bend, and gyrate. But they rarely break. And when the wind dies down, they return to their former position. Although such leaves may rise 100 times their width and more than 500 times their maximum thickness, al-

though they are feather-light and partially filled with air, they are able to withstand innumerable stresses and tensions. The cattail leaf represents a marvel of Nature's engineering.

The secret of its strength lies in its internal construction. Cut across a cattail leaf with a razor blade—either a broad-leaved cat-

tail, *Typha latifolia*, or a narrow-leaved cattail, *Typha angustifolia*—and what do you find? You discover a remarkable system of internal bracing comparable to that of an airplane wing. Millions of years before the Wright brothers flew at Kitty Hawk, Nature devised the maximum lightness and strength construction of modern aircraft design.

In the series of photographs on these pages, you find some of the similarities between leaf and wing. Not only does the cross section of the leaf show a construction almost exactly like that of the ribs of the earliest airplanes, but the camber and thickness of both wing and leaf decrease from base to tip. Six cross sections, taken at different points along a latifolia leaf five-eighths of an inch wide and seventy-two inches long are shown in one of the photographs. The series, showing the internal con-



▲ The leaf can be bent like a hook without being broken, despite its featherweight construction.



➤ Cut a section out of a leaf and you will find an internal construction suggestive of a plane's wing.

struction of the leaf at various distances from the base, reveals how the leaf, like the conventional airplane wing, grows thinner and less convex as it approaches the tip.

Running the full length of a cattail leaf, from base to tip, are veins that are comparable to the longitudinal spars of the aircraft wing.

Inside the leaf, if a section to the top is removed with a razor blade, you discover innumerable cells, their walls forming a mesh or open network. These cells can be examined from the side by splitting the leaf vertically and folding back the two halves. This framework of open cells, in staggered rows, is an



▲ So strong are the leaves that in a high wind they will only lean and then return to their normal position. Sometimes the roots will be upturned before the leaves break. (*Typha angustifolia*)



▲ Sections at intervals of about a foot show that the leaf becomes less convex and thinner toward the end, just as an airplane wing does.

important feature in providing the leaf with the greatest strength for the least weight.

For nearly 20,000,000 years, the cattail leaf has been making use of this construction. Curiously enough, although this water plant has been on earth so long, it forms one of the smallest families of flowering plants, having but a single genus. Two species are the most familiar, wide-spread *Typha latifolia* and the narrow-leaved *Typha angustifolia*. The latter is confined to calcareous regions inland and brackish waters near the coast. At one time, the leaves of this cattail were harvested for making paper and for sealing watertight casks. The dried leaves were inserted between the staves. Later, when the container was filled with fluid, the



▲ A cross section through the bundle of leaves near the base shows how the cell construction develops.

◀ Slicing off the surface of the leaf reveals a system of hollow cells separated by lengthwise and crosswise braces. This picture is of *Typha latifolia*.

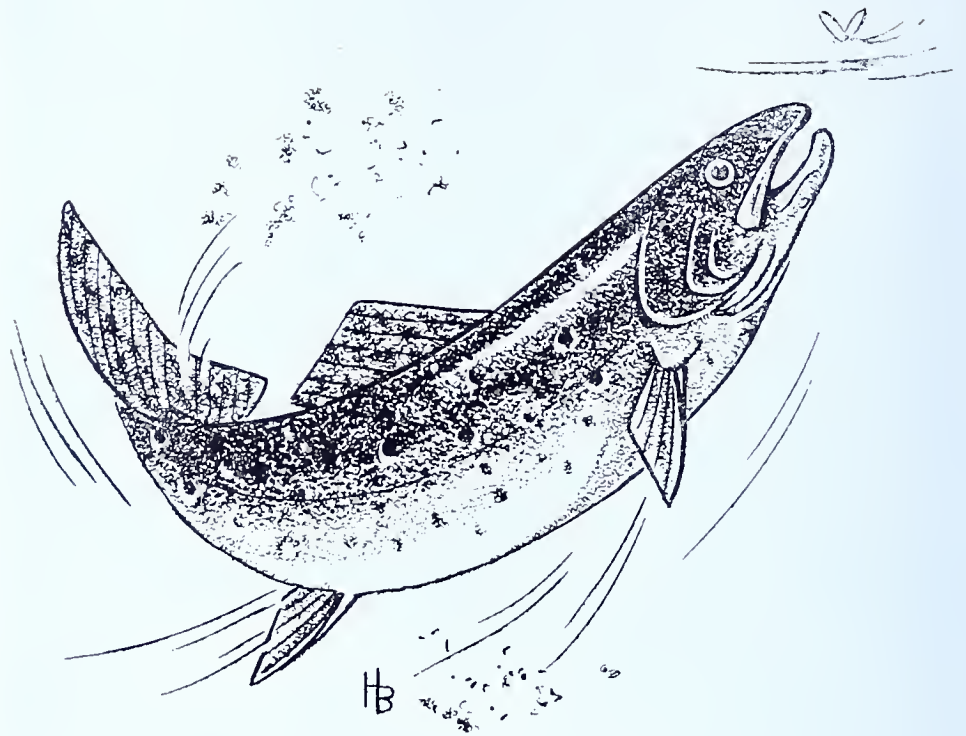
▼ The same leaf, when split lengthwise and folded back on itself, shows the crosswise divisions that reinforce the longitudinal ones.

leaves swelled to form a perfect sealing at the seams. It is the airborne seeds that spread the cattail over wide areas. Once established, however, the perennial roots continue to advance, so that a stand of cattails an acre in extent represents only a few plants.

Paradoxically, the strength of the cattail leaf occasionally proves a disadvantage to the plant. Cattails are pioneer land builders. Their interlacing roots push out into deeper water along the edges of shallow ponds. Advance clumps, insecurely anchored, sometimes meet disaster when they are capsize by the wind. The internal bracing of the lightweight leaves is sufficiently strong to withstand the gusts. They bend but do not break, and in this straining tug of war it is the massed roots below rather than the leaves above that give way first.



If You Would Catch More Fish



By **JOHNNY MOCK**

Outdoor Editor—The Pittsburgh Press

Mr. Mock deplores present day emphasis on **CATCHING** and **KILLING**. Too much importance is on the "TAKE," too little on the "PUT." In this thought-provoking article, he fervently urges anglers to follow and put into **PRACTICE** the slogan of the Pennsylvania Fish Commission!

..... **KILL LESS!!**

SOMEDAY we're going to be surprised. In fact, we'll be amazed.

And it will be because we finally came across a volume on fishing which did not tell the fisherman how to catch a stringer of bass or fill a creel with trout.

Every book tells about the taking, but nothing of the replacement, or of what follows when the lake or stream is depleted of its inhabitants. Perhaps, because of there being no more fishing under such conditions, there is no need to say anything more.

Up to now, all treatises on fishing are written for today. Let tomorrow take care of itself. That seems to be the attitude of the learned gentlemen who pound out thousands upon thousands of words on how to capture the finned denizens of our waters.

What of those who are to take up where this generation leaves off? What of those which are still to come a generation or two in the future?

Almost without exception the goal seems to be advice on how to take the limit.

Isn't it about time that the sport be geared more to conservation—to learn that others, too, will someday like to enjoy a day or two astream.

Too much of the present day writing is put on the catching and killing of fish and not enough on fishing.

Some years ago, the Pennsylvania Fish Commission popularized a slogan entitled, "If you would catch more fish—kill less!"

Whoever originated it must have realized long ago that under present-day fishing conditions there

cannot be, except in artificially controlled and highly productive waters producing at their maximum capacity, enough fish for everyone to have all they want.

In days gone by, when fishermen were few and the streams teemed with fish, competition between anglers rested upon he who caught the heaviest stringer or filled the biggest creel.

Today, that situation no longer exists. The picture has changed.

One by one the streams became polluted. The habitat for fish became more and more restricted, resulting in an ever-diminishing possibility of enjoying the sport.

With the facilities reduced the fisherman is compelled to share with his fellow angler the fishing which still remains.

The necessity for heeding the slogan is greater than ever before.

Fishing can be preserved and perpetuated—if the angler will take upon himself the responsibility of conservation in return for the privilege of taking a share of the fish which belong to all of the people.

At all times, fishing should be considered as sport. To abide by the slogan is the obligation of the angler and in doing so he still retains the opportunity of getting the utmost of enjoyment out of every fish he lands.

Personally, we have always contended that the average fisherman, regardless of the method used, fishes primarily for sport—food is only secondary. That's why he uses a rod and line.

As the years have gone by he has constantly penalized himself with the lightest of tackle, making the taking of fish a matter of skill and even though the fish is taken, it need not be killed, for it can readily be returned to its native element, to provide the thrill of capture on another day or for some other fellow angler.

Out to get the limit was the objective of the old-timer, when such accomplishments were possible. It satisfied his vanity and built up his reputation.

Today, with the facilities constantly being reduced in the face of an ever-increasing army of fishermen, such egotism and standing have no place in sport astream.

Why should it be to one's disgrace if beaten by a companion who caught more fish? In every sport there is a winner and a loser and a good loser is always a much greater credit to the game than a poor winner.

Speaking of this situation, the late O. Warren Smith expressed himself in these words:

"One can but wonder why it is that we are so eager to take the limit, not to be topped by others of our group. Why should we feel an inordinate shame when we are beaten by other members of our party? I have long labored to overcome that 'unmanly,' 'unsportsmanlike' attitude of mind. It is exceedingly difficult, for I have won

a local reputation for being a successful angler and to beat 'O.W.' is a triumph. Many times these last years I have taken myself by the throat, metaphorically speaking, and delivered myself a severe castigation. I have even made myself release some good trout in order that my companion might "beat" me, to his great delight and my apparent shame. Does me an untold degree of satisfaction to confess it here in print.

"Perhaps some will believe me, though a great many will not, thinking it my 'out' for being beaten. Our difficulty is, we have a microscopic view of others, a telescopic view of ourselves"

The degree of satisfaction an angler gets from his sport depends upon the conditions he imposes upon himself. The more he penalizes himself the greater the gratification, so long as such restrictions are not to the point where it becomes impossible to catch any fish at all.

The latter would be going to the opposite extreme and serve no useful purpose if all fishermen would adopt such standards. After all, a certain number of fish must be harvested the same as is done with any other crop.

A happy medium would be the adoption of the slogan—"If you would catch more fish—kill less!"

No sane conservationist would advocate fishing 100 percent for sport, returning to the lake or stream every fish which was caught. Practical conservation means the wise use of any natural resource—in some instances the harvesting of the product is necessary; in others it is best not to interfere. This applies to fishing just as it does to anything else in which there is reproduction.

Few sports give the individual that quickening of the blood stream, the tightening of the throat, the tenseness of the muscles, the sharp clearing of thought and the intense focus upon the movement of the quarry. Those experiences are all good, not evil. That's the way it should be continued and perpetuated and one sure way of doing it is to follow that which is urged in the slogan:

"If you would catch more fish—kill less!"



A May Fly SHEDS ITS SKIN

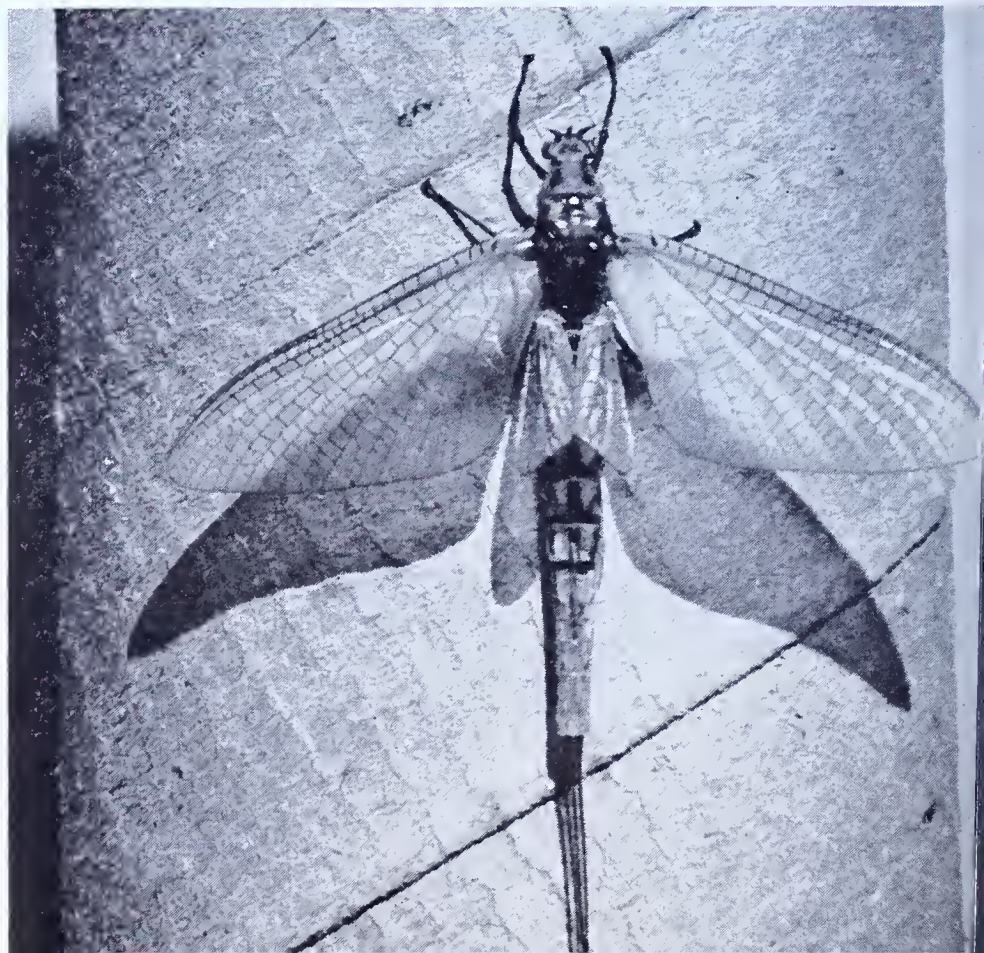
By
JANICE HINTZ

The camera caught these remarkable photos of the only insect to molt after acquiring fully developed wings.



Here is the natural position of a May fly with wings held upright. This is the subimago stage which precedes sexual maturity.

FIRST STAGE: When the May fly is ready to shed its skin, it puts its wings down flat, then flits for a minute or so.





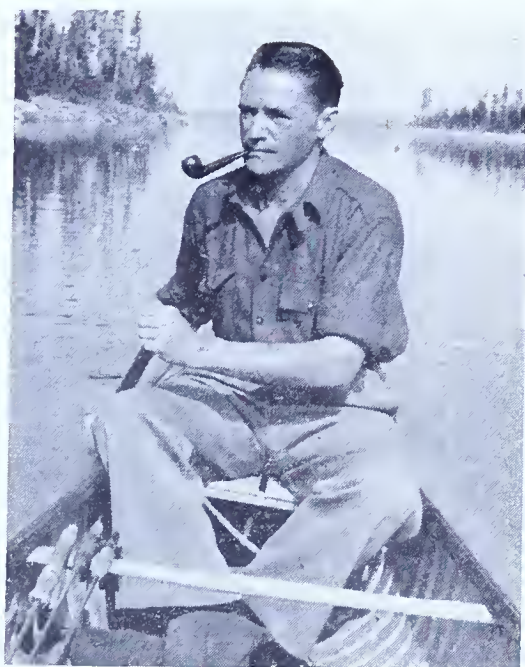
SECOND STAGE: Then the skin between the wings splits and the May fly pulls its thorax and head out of its old skin.

FOURTH STAGE: Then it struggles to regain an upright position. It took this May fly five minutes to shed its skin.

THIRD STAGE: After the May fly has freed its wings and body, it does a neat back flip, then hangs as if it were dead for a few seconds.

FINISHED! The May fly emerges from its ghostly skin with wings glistening like golden cellophane. It rested aside its dried, fragile skin until evening, then fluttered away into the dusk.





by Joseph D. Bates, Jr.

Tackle and Tactics for fishing with Streamers

DOES the wet fly or the dry fly angler need special tackle to go fishing with streamer flies or bucktails? Basically, no. Let's use whatever fly casting equipment we have. Let's go out and have fun fishing with these long flies that imitate baitfish, because these long flies frequently will catch fish when no others will. And bigger ones at that.

But, if you have in mind to buy an outfit ideally suited for streamer fly fishing, there are certain qualities to look for. Remember that streamers and bucktails are large, usually, and very resistant to wind. We need a forward taper line to carry them out easily and a stiffer rod to handle both fly and line.

Therefore, the limber old-fashioned "wet fly" rod is very much out of place. Let's choose one with considerable strength in the mid-section, this strength gradually diminishing toward the tip. The tip should have ample power to handle the large fly and the heavy belly of the line.

Since streamers and bucktails are used for everything from tiny trout to tackle busting tarpon, it is obvious that no one rod will be ideal for all forms of fishing, any more than only one golf club will be ideal for all purposes on a golf course. For all average inland fishing and for light salt water work, a rod as described above, between four and five ounces in

weight should do nicely. For longer casts and the added power needed to handle large streamer flies, a rod of between five and six ounces would be better. Heavy salt water work may require one in the six to seven ounce class, but few men have the powerful arm needed to use such a weapon all day long without excess fatigue.

The line, of course, should be heavy enough to bring out the action of the rod. While a level line or a double taper will do, the torpedo (or forward taper) line is far better, especially when the extra weight of this line is needed to drive a bulky streamer fly into the wind. Silk lines are about one size heavier than braided nylon fly lines. Therefore, they are

smaller in diameter and thus allow room for more backing on the reel. They sink more readily than nylon lines, which usually is considered to be an advantage unless one chooses to fish near the surface. Some fishermen like to use a floating line with streamers because it can be picked up easier; the leader allowing the fly to sink slightly below the surface. Quite obviously, this is a disadvantage when fish are deep down in pools, as they so often are in the early spring. In deciding between these two types of fly lines we should remember that silk deteriorates more rapidly than nylon and thus needs careful washing and drying.

To make all this easier for those unused to selecting streamer fly fishing equipment, the following



The new BEAD-BUCK trolling fly made by Lyford Lures. Though lure comes in 12 patterns, trail fly is detachable. Single BEAD-BUCK gives choice of many variations. Tandem hooks so arranged nearly every strike means hooked fish, every bead acts as swivel, fish get no leverage to throw hook. A proven fish getter in both fresh and salt water angling.

table may be of help. This table is copyrighted in my book "Streamer Fly Fishing in Fresh and Salt Water" (D. Van Nostrand Co., Inc., New York, \$5.00), which attempts to give complete information on this entire subject, plus accurate dressing instructions for tying over 250 of the most popular streamer flies and bucktails. This book may be helpful to those who are interested in knowing more about this subject than these necessarily brief articles can provide.

Rod Length in Feet	Rod Weight in Ounces	Silk Level	Nylon Level	Silk Double Taper	Nylon Double Taper	Silk Torpedo	Nylon Torpedo
7½ to 8	3-4	F	E	HEH	HDH	HEG	HDG
8 to 8½	4-5	E	D	HDH	HCH	HDG	HCF
8½ to 9	5-6	D	C	HCH	GBG	HCF	GBF
9 to 9½	6-7	C	B	GBG	GAG	GBF	GAF

TABLE FOR LINE SELECTION

I should add a word of caution about selecting lines in conformance to the above table. Fittings on rods vary and influence weight. Sticks of the same weight vary in power. If possible, borrow lines a size heavier and a size lighter than that called for and try all three on your rod. It is amazing how much better a rod works with a line that fits than with one that doesn't. Usually the tendency is to use a line that is a bit too light to bring out its power sufficiently.

Any fly reel will do for inland fishing provided that it will hold the line properly. Backing usually is unnecessary in fresh water, but in salt water fly fishing over one hundred yards frequently are needed. This calls for a larger reel, such as the big Medalist or (if you can afford it) one of those beautiful creations of Otto Zwarg, of Florida and formerly with Vom Hoff, of Philadelphia. If the tackle is for salt water, buy a reel with an adjustable drag; a reel that is large enough to hold plenty of backing and one well enough made to take plenty of punishment from fast running fish.

The leader usually should be about as long as the rod, and somewhat heavier than for other fly rod work, particularly toward the butt end. Nylon monofilament is ideal;

especially the world famous French brand known as "Tortue." This can be obtained in 13 sizes from 2.2 to 15.4 pounds test at any good tackle shop. It is amazingly strong, properly stiff, nearly invisible, easy to tie and inexpensive. It does not need soaking, as silkworm gut leaders do. More and more anglers are finding it cheaper and more convenient to tie their own leaders. This is a simple process, and a few 50 or 100 meter spools of "Tortue," in appropriate sizes, will

keep you in leaders for years to come!

Fishing a stream properly with streamers or bucktails is fully as important as owning the right tackle for the job. When we talked about streamer flies, in the last issue of this magazine, we stressed the point that it is important to fish them in the same manner that a baitfish swims. Take time to watch the baitfish during a noon-time lull on the stream. You will observe their habits of darting about with short, jerky motions,

which become more erratic when gamefish are nearby. Watch them and try to work the streamer fly in the same way.

Cross stream fishing usually provides the best results. To sink the fly deeper, cast it upstream and across. Let the streamer drift in the current for a few seconds and then work it a little, alternately. Make it dart close by rocks, submerged logs, undercut banks or other spots where gamefish may be resting or feeding. Let it swing with the current and at the end of the swing let it stay in that position for half a minute, working it so that it is jerked toward you and allowed to drift back several times. Frequently a gamefish will follow it as it makes its swing and will take it just as the swing is completed.

In all cases, it is important to keep unnecessary slack out of the line, and to bring the fly near to the surface before picking it up to make a new cast. If there is no slack in the line, the fish usually will hook himself. When a strike is felt, a slight upward twitch of the rod tip should assure setting the hook. If we miss the strike, this slight twitch will not remove the fly from the vicinity of the fish, and he may hit it again.

Sometimes we feel strikes with streamers and yet we fail to hook the fish. This usually is because the wing is too long for the length

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SUBJECT: THE OUTDOOR WRITER'S PART IN THE ANGLING PROGRAM

By: Seth L. Myers---President, Pennsylvania Outdoor Writers Association

THE average outdoor writer is a serious minded individual. Extremely few of them with whom I am acquainted, consider themselves experts on the management of any of the natural resources. However, it is common belief amongst the fishermen, for instance, to feel that their favorite writers can supply them with the best information on fishing. The same feeling exists in the ranks of the hunters when the problems concern hunting.

It is not unusual to hear readers of certain outdoor columns refer to their writers as experts. I have often heard it said that "Joe Doaks said so in his column, so it must be true!" There is no question in my mind about whether the readers take Joe Doaks' stuff seriously; they do, hook, line and sinker.

It is reasonable to assume then, outdoor columns are important to fishermen, and if so, they are of equal value to those whose responsibility it is to administer the fish program of a state.

I have known mighty few outdoor writers in whom the fishermen may not place confidence or look to for authentic information on fishing lore. The same may be said of the other phases of the outdoor sports.

It has been my experience in associating with many outdoor writers, whether in Pennsylvania or other states and provinces, to find them so wrapped up in their work, that one might term it something akin to religion.

They become so obsessed with concern over man's waste of his own natural heritage, that in their writings and talks, they appear to take on the aspect of the ministry. Mighty few of them pack any veneer.

I believe the vast majority of fishermen are just as sincere in their quest of clean sport on the streams and lakes as the writers are in their writings.

I do not think the average fisherman reads outdoor columns simply to learn where other fishermen have been most successful. It is of course, natural that readers will make note of various "tips" for improving their fishing techniques, but on the streams, they'll usually use their own ideas.

In reply to my question on why they read columns on fishing, most of them have told me it is because they love the sport, and when other things prevent going astream, reading about it is a good substitute. Some said they learn more of how to enjoy fishing regardless of catches.

I have felt for a long time, that published articles and stories on fishing are as much a part of the sport as the rod, reel and line.

I've wondered many times, just what all is considered in the old familiar term, "fisherman's luck" and how many take it seriously. If a person returns from a fishing trip with a nice catch, can it be said that it was simply good luck? On the other hand, if the creel comes back empty, can the blame all be

placed in the "bad luck" category?

In the case of the successful angler, it may be that through reading an outdoor column, he has learned exactly when and how to set the hook when a strike is made. We have all seen anglers missing good catches consistently, by attempting to set their hooks too soon.

I have seen and heard, and so have you, the so-called "unlucky" fishermen blaming their tackle, the weather, the Fish Commission and even the Solunar Tables for their lack of success. This usually takes place where others are catching nice ones nearby.

The fishermen who nearly always return with fish are probably those who read outdoor news and know about certain waters being polluted. They have made note that certain streams have been ruined for fishing by dredging operations or some other disturbance. They simply seek out the undisturbed waters and of course, are able to bring back some fish.

The outdoor writers, in condemning the cause of the ruined waters, have also tipped the readers about the poor fishing conditions.

Quite often I use a suggestion made at a convention of the Outdoor Writers Association of America, by its secretary, Mike Hudoba, for writing conservation into a column. He used the story of a boy who had been unsuccessful at catching fish from a muddy stream.

Instead of merely telling the boy,

Conscientious, hard-working, more often poorly paid, receiving little or no recognition but plenty of complaints, the outdoor writer plugs along, column after column in our daily newspapers dispensing and interpreting valuable information to the angling public. There are relatively few writers who haven't literally pulled themselves up by the bootstraps to sell the town's grudging newspaper editor on the need for a local outdoor column. By and large these unselfish men are first and always striving to carry the conservation message to the public, to promote better fishing and outdoor recreation for all. We should back them up and give them the recognition they so richly deserve!

or writing in a column, that fishing would not be any good until the water cleared, one should go on to explain why the water was muddy. It can be told in an interesting story of how the lands upstream have been stripped of forests, with the result that when heavy rains come, the topsoil is washed into the stream causing the muddy water.

The boy, and the readers of the column, will have a better understanding of how poor management of the natural resources affect other phases of our outdoor heritage; even to the catching of fish.

If, in this manner, a great number of fishermen can be aroused to the recognition of recklessness with which all the natural resources are being squandered, it can mean something. It can create enough public opinion to help bring about a more sensible usage of the natural resources.

As long as the wasters of the great outdoors know they have only a handful of conservationists and wildlife managers stacked against them, they are not apt to change their practices. But when the whole public is aroused to the ultimate disaster pending and the popular demand is for good conservation measures, then, and only then, will present day wastefulness be corrected.

The outdoor writers have a tremendous responsibility in this necessary movement or crusade. They must work it into their columns. I think the time is past when the outdoor writer must stick to telling where and how to catch more fish, or kill more game. I don't believe the readers expect a continuous flow of information along these lines. They recognize the need of conservation in order to maintain

some fishing and hunting for their children and grandchildren. I think they are with us in this fight.

The average fisherman knows very little about the tremendous uphill program of the Fish Commission in its attempt to provide even a fair supply of fish for the million fishermen in Pennsylvania. It is not likely that many fishermen stop to wonder where they would go to fish, were it not for the year round work of the Commission in raising and stocking millions; yes, tons upon tons of fishes for our lakes and streams.

When the Commission sends out its circulars reporting its progress,

only a few interested persons in each community actually receive the information. Those who happen to be attending a meeting of their sportsman club, may hear them read. That is providing there is time available.

It disturbs me severely, when at meetings I hear it said that time does not permit the reading of these important papers. It seems to me that the very meat of a sportsman meeting is being passed up when such needed information is not given to the attending members.

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Fly Rods in America



By JOHN ALDEN KNIGHT

Part II

Mr. Knight continues his excellent, interesting treatise on the fly rod in America. Much factual history has been laboriously collected in this installment. Wise ANGLER readers will carefully retain these copies.

TOGETHER with Leonard's name, the name "Mills" is printed indelibly on the pages of history in the development of American fly-rod patterns. It all came about this way.

As explained earlier, H. L. Leonard was making bamboo fly rods and selling them to Andrew Clerk and Company of New York City. Some of these rods were exported to Great Britain and the rest of them found homes in this country.

At that time, Leonard had his shop in Bangor, Maine, not in New York City as is generally supposed. Exactly when he established his shop in Bangor is not exactly known, but it was certainly prior to 1873.

Meanwhile, half a century earlier, there was established in New York City the tackle firm of T. and J. Bate. This was in 1822. This tackle house developed through various stages: 1822—T. & J. Bate;

1836—Thos. Bate; 1843—T. & T. H. Bate; 1853—Thos. H. Bate; 1859—T. H. Bate & Co.; and, at last, in 1875—Wm. Mills & Son The "son" was Thos. Bate Mills.

Of course, Thos. Bate Mills had heard about Leonard and his rods. In 1879 he and Leonard formed a partnership. The Leonard factory was moved in 1881 from Bangor to Central Valley, New York, where it is today. This partnership was rechristened "The H. L. Leonard Rod Company" in 1888. The output of this factory was handled by the firm of Wm. Mills & Son, whose history is noted in the preceding paragraph. Leonard rods were labeled with the distinctive insignia on the reel seat, which is reproduced here in twice its actual size.

THE
H. L. LEONARD
ROD
LEONARD & MILLS CO.
MAKERS

Leonard rods were so identified until around 1920 at which time the insignia was changed to its present form, shown here.

THE
LEONARD
ROD
H. L. LEONARD ROD CO.
MAKERS

The Leonard factory was the training ground for other famous names in American fly-rod manufacture. Edwards (of Syracuse), Hawes, Payne and Thomas all were employed at the Leonard factory. These men, at the time of their employment there, were not rod makers. Instead, they were hired as metal workers, turning out fittings for the rods. In due course all four of them left the Leonard Company and set up their own factories. Contrary to general opinion, Devine, Orvis and Chubb never were employed by the Leonard factory.

Fly-rod patterns remained pretty much on British design until the introduction of the dry fly to American waters. While it is generally supposed that George LaBranche was largely responsible for this introduction, such is not the case. The man who did the real

foundation work and who developed some of the lasting American fly patterns was Theodore Gordon.

Gordon, through correspondence with British friends such as Halford and Skues, started his own investigations of the use of the dry fly around 1900 or earlier. Gordon was an intelligent man and a natural student and observer. He knew, of course, that our Catskill fly hatches did not correspond to the hatches on British streams. Thus, British fly patterns, while they did take trout on occasion, lacked much when it came to being exact imitations. Being an expert fly tyer, he came up with such patterns as the Quill Gordon, the Gordon (or Pig's Wool Gordon as it is sometimes called) and Gordon's Killer (a little-known pattern which has not survived).

He soon learned, also, that the fly rods which were built to British specifications were not practical for our American streams. He it was who urged the American fly-rod builders to give us shorter, lighter, faster rods. In a letter to a young friend of his, Guy R. Jenkins of New York City, written on January 24, 1915, he said:

"If you are buying a new rod at a high price, go slow, and be sure that you are fitted.

"Only yesterday I had a letter from a man whom I thought was a good performer with the rod, saying that the Tournament Leonard he bought last Spring had put his hand out so that he can not cast well with his old rods or with the new one. (This model Leonard was nine or nine and one-half feet long, weighing five and three-quarter ounces or thereabouts. In the hands of a good caster it was powerful enough to lay out casts of one hundred feet or better, using an ordinary double-tapered line.)

Gordon goes on to say—
"Not long ago I made a study of Mr. F. M. Halford's methods. . . . The difference between Halford on the Test and an American angler on one of our mountain streams is very great. . . . He cast once when the American on a rapid stream would cast dozens of times. There is no comparison between the two methods or in the tools that are to be preferred for them. I want a

rod with a snappy, quick action, that will respond instantly."

Theodore Gordon was an invalid and much of his income was derived from tying flies for a group of Catskill anglers. Among these were Ed Hewitt, Andy Monell, Les Petrie, Guy Jenkins, William Gill (author of the first book on American dry-fly fishing), George LaBranche (author of *The Dry Fly and Fast Water*), Walter Sill, John Woodruff, and so on—all famous names in the early days of American dry-fly fishing. These men followed Gordon's advice, not only on fly patterns but also on rod design. All of them used Leonard rods. Thus, it is not difficult to see that Gordon's leaning toward a fly rod that had a "snappy, quick action" soon resulted in the standardization of several new patterns in Leonard rods.

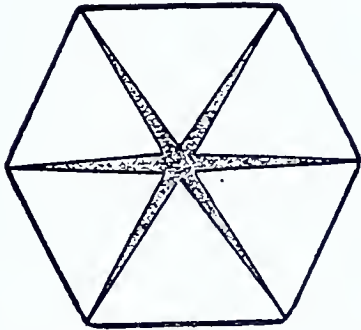
It does not take the fishing fraternity very long to learn about innovations in tackle and methods. Soon all of the rod companies were turning out what they called "dry-fly rods"; short, fast affairs with entirely too much power for their weight and length. As men learned to use the dry fly, the demand for shorter, faster "dry-fly rods" became increasingly heavier each year. Trout rods were built in two widely distinctive classes—the fast "dry-fly rods" and the longer, slower, softer "wet-fly rods."

In 1928, Edward R. Hewitt began his experiments with "streamers" in his privately owned stretch of the Neversink River in New York State's Catskills. The popularity of these little lures spread rapidly and it wasn't long before "streamer-fly rods" appeared on the market. These were eight and one-half and nine-foot affairs, slightly heavier than "wet-fly rods"

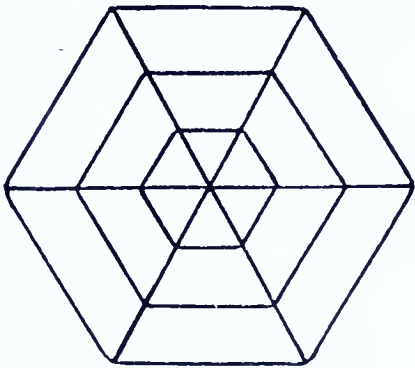
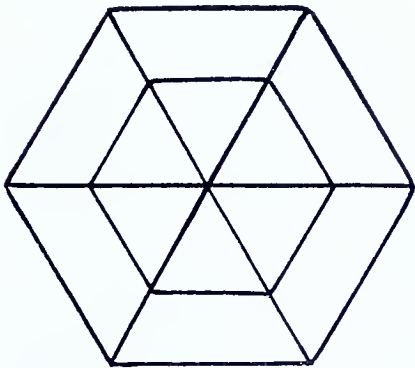
and not quite as fast as the "dry-fly rods" of that period. As a matter of fact, streamer-fly actions made more sense than the other two more extreme models then popular. Most of them were good, useful fly rods.

It was inevitable, during these years of changes in fly-rod design, that radical innovations should appear on the market. For instance, there were the seven and one-half and seven-foot dry-fly rods—short, stiff affairs that required extra-heavy lines to bend them enough to put them to work. These were decidedly of the top-action variety, with heavy lower sections, quick-tapering to flimsy little tips. Ed Hewitt went these even one better when he talked Mills into turning out the Hewitt Steep Taper. I have one of these—a decided top-action, with heavy lower sections and a soft, sloppy tip. It will handle a line all right up to thirty or thirty-five feet but from there on it literally is not of any use.

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It is a regrettable practice in some of the factories which turn out "production rods" to cut the strips for a hexagonal rod section with a 61½ degree cutter instead of the correct 60 degree cutter. This enables the gluing department to glue up neat-appearing rod sections from strips which have been inaccurately cut. However, the strength of the interior of the rod depends solely upon thick layers of glue.



Cross sections of double-built and triple-built rod sections. These are used principally in heavy sticks such as surf rods, tuna rods, etc.

THE EMERGENCE TABLE

Common Name	Scientific Name	Habitat	Approx. Emergence date in climate comparable with Penna.
***Little Black Stone fly	<i>Taeniopteryx fasciata</i>	Pa., W. Va., Tenn., Mass., N. Y., Minn., Mo., Md., Kan.	Apr. 15
*Red Quill	<i>Iron Pleuralis</i>	Pa., N. Y., N. J.	Apr. 16
**Little Black Caddis	<i>Chimarra atterima</i>	Pa., N. Y., Canada, Del., Ind., Ga., N. J., Fla., Wash.	Apr. 27
Red Legged March fly	<i>Bibio femoratus</i>	Pa., N. Y., N. J.	May 1
Alder Fly	<i>Sialis infumata</i>	Pa., N. Y., N. J., Ill., Quebec, Nova Scotia, New England, Wash., Mich., Minn., Calif.	May 1
***Light Stone fly	<i>Isoperla signata</i>	Pa., N. Y., Nova Scotia	May 1
*Black Quill	<i>Blasturus cupedus</i>	Pa., N. Y., Ohio, Ill., Nova Scotia, Newfoundland, Ont., Quebec, Canada, N. H., R. I., N. J., Mass.	May 15
*Early Brown Spinner	<i>Blasturus cupedus</i>	Same as above.	May 17
Yellow Spider	<i>Antocha saxicola</i>	Well distributed throughout the Northern Hemi- sphere	May 16
***Stone fly	<i>Perla capitata</i>	Pa., N. Y., Md., Ill., Mass., Minn., Mich., Ind., Quebec, Kan., Tenn., N. C., Nova Scotia	May 15
*Pale Evening Dun	<i>Epemerella dorothea</i>	Pa., N. Y., Tenn., N. H., Quebec, N. B.	May 20
*March Brown	<i>Stenonema vicarium</i>	Pa., N. Y., N. C., Quebec, St. Lawrence River	May 20
**Spotted Sedge	<i>Hydropsyche solomonae</i>	Pa., N. Y., Wisc., N. H., Mich., Ill., Ont.	May 16
*Great Red Spinner	<i>Stenonema vicarium</i>	Same as above.	May 22
**Green Caddis	<i>Rhyacophila lomifera</i>	Pa., N. Y., N. J., Illinois	May 22
*Dark Green Drake	<i>Hexagenia recurvata</i>	Pa., N. Y., Maine, Mich., Mass., W. Va.	May 20
*Brown Drake	<i>Hexagenia recurvata</i>	Same as above.	May 23
*Ginger Quill Dun	<i>Stenonema fuscum</i>	Pa., N. Y., Ont., Quebec, New Brunswick	May 25
*Pale Evening Spinner	<i>Ephemera dorothea</i>	Pa., N. Y., Tenn., N. H., Quebec, N. B.	May 25
*Green Drake	<i>Ephemera guttulata</i>	Pa., N. Y., Tenn., Ont., Quebec	May 26
*Black Drake	<i>Ephemera guttulata</i>	Same as above.	May 30
*Gray Drake	<i>Ephemera guttulata</i>	Same as above.	May 30
Fish fly	<i>Chauliodes serricornis</i>	Pa., N. Y., Md., Ga., Minn., Ohio	May 28
*Ginger Quill Spinner	<i>Stenonema fuscum</i>	Same as Ginger Quill Dun	May 27
*Iron Blue Dun	<i>Leptophlebia johnsoni</i>	Pa., N. Y., N. H., Ont., Quebec	May 28
*Jenny Spinner	<i>Leptophlebia johnsoni</i>	Same as above.	May 30
Orange Crane fly	<i>Tipula bicornis</i>	Pa., N. Y., N. J.	May 29
Whirling Crane fly	<i>Tipula bella</i>	Pa., N. Y., N. J.	June 1
*Brown Quill Spinner	<i>Siphonurus quebecensis</i>	Pa., N. Y., Ont., N. C., Quebec	June 1
Golden Eyed Gauze Wing	<i>Chrysopa occulata</i>	Commonly distributed.	Variable
Blue Bottle	<i>Lucilia caesar</i>	Commonly distributed.	Variable
White Miller	<i>Physostegania pustularia</i>	Commonly distributed.	Variable
Saw fly	<i>Pontania sp?</i>	Pa., N. Y., Md., N. J.	June 25
*White Gloved Howdy	<i>Isonychia albomanicata</i>	Pa., N. Y., N. C., Ont.	June 27
***Yellow Sally	<i>Isoperla bilineata</i>	Pa., N. Y., Ohio, Newfoundland to Saskatchewan & N. J. to Colorado	June 28
*Golden Spinner	<i>Potomanthus distinctus</i>	Pa., N. Y., W. Va., Ohio	June 28
***Willow or Needle fly	<i>Leuctra grandis</i>	Pa., N. Y., N. J., N. C.	June 28
*Yellow Drake	<i>Ephemera varia</i>	Pa., N. Y., Mich., N. H., Ontario	July 1
**White Caddis	<i>Leptocella exquisita</i>	Florida to Canada	July 2
Deer fly	<i>Chrysops vittatus</i>	Eastern & Northern States	July 2
Green Midge	<i>Chironomus modestus</i>	Pa., N. Y., N. J., Ont.	July 4
Black Midge	<i>Chironomus lobiferus</i>	Pa., N. Y., N. J., Ont.	May-Sept.
**Spotted Sedge	<i>Hydropsyche slossonae</i>	Pa., N. Y., N. H., Wisc., Mich., Ill., Hudson Bay	May 16
**Grannom	<i>Brachycentrus fuliginous</i>	Pa., N. Y.	May 30
*White May fly	<i>Stenonema rubromaculatum</i>	Pa.-Kettle Creek	June 26
**Big Orange Sedge	<i>Neuronia postica</i>	Pa.-Wallenpaupack Creek	July-Sept.
**Brown Silverhorns	<i>Athripsodes wetzell</i>	Pa.-Kettle Creek	June 30

*Indicates may flies. **Indicates caddis flies. ***Indicates stone flies.

Emergence Dates of Trout Stream Insects

By Chas. M. Wetzel

THE Emergence Table described below indicates dates when the fly fisher may expect to find these insects flying over the trout streams.

The study and collecting of the insects extended over a four year period and covered the majority of the better known Pennsylvania trout streams. Trips were so arranged that practically every day of the trout fishing season was covered.

The emergence dates represent the earliest dates. I have found these insects abroad. The period of emergence does not vary appreciably, perhaps a week would cover the majority of cases. In some specific instances, the same insects were abroad on the same date for each of the four years. Naturally a great many more insects were collected and identified than those described in the table; and it became necessary to eliminate the following: (1) those that did not appear yearly; (2) those which offered no attraction as food for trout, and (3) those having a purely local distribution. Unlike the entomologists who are constantly looking for new species, the fly fisher is mainly concerned with the common insects particularly those that appear in great abundance and have a wide distribution.

The majority of insects—particularly the mayflies—were tentatively identified by myself, and to insure against possibility of error, they were submitted for a check identification to various leading authorities. Typical of such is the following letter received from Dr. J. McDunnough, the Canadian mayfly specialist.

April 29, 1938.

Dear Mr. Wetzel:

I received your letter of April 21st together with the specimens mentioned therein. I think that without much doubt, you are correct in assuming that the species

is *Iron pleuralis* Banks. You have possibly read my recent remarks on this species which were published in the "Canadian Entomologist," 1938, Volume 70, p. 32, in which I criticize Dr. Traver's identifications in this group. There is a possibility, as your specimens are quite large and dark, that they might be referred to *fraudator* Traver, but, to my mind, this is only a slightly larger and darker form occurring in the South and might very well be sunk in the synonymy to *pleuralis*. I have of course made no genitalic slide, but, as far as I can see these organs, they agree with those of *pleuralis*. The matter of the stigmatic cross veins which you mention is not of any importance in determining the species. These vary somewhat from upright to slanting in individuals.

I should be glad to receive further Ephemerid material from you during the coming season and will see that duplicate material is returned to you named. I am retaining one of the present specimens and am returning you the other three. I would suggest that you use a more uniform type of pin, preferably black, say a No. 2, and that in pinning you endeavor not to crush the thorax and to have the wings as far as possible raised above the back, close together. Your method of shipping was quite satisfactory.

Yours very truly,

J. McDUNNOUGH,

Chief, Systematic Entomology.

Now all of this may seem rather technical and appear irrelevant to a great many fly fishers, but please bear with me while I explain its importance.

Until the PENNSYLVANIA ANGLER came into existence in 1931 there was practically nothing known or written in this country pertaining to trout stream insects.

Everyone knew of course that such insects appeared over the trout streams—and that their appearance over the water was the signal for the trout to start feeding. These insects were of various kinds such as mayflies, stoneflies, caddis flies, midges, crane flies, etc. and they were clothed in various colors. Outside of entomologists very few knew the names or even the orders of these insects. It was known though that when they appeared over the water, the trout started actively feeding—rings appearing everywhere over the surface. It was also quickly learned—especially after the introduction of the brown trout—that the most killing flies were those patterned after the living insects in form, color and size.

Many killing flies were no doubt designed and patterned after American trout stream insect during this period, but few of them attained any prominence mainly because the designer did not know the order or species of fly he had imitated. Nothing also was known as to when such flies appeared year by year over the water.

In short the correlation of entomology and fly fishing needed to be brought about. If this could be accomplished the advantages would be manifold. It would (1) stimulate an interest in nature; (2) make fly fishermen out of bait fishermen thereby conserving the streams natural food supply; (3) encourage an interest in fly tying enabling the angler to get more pleasure out of the sport; (4) remove forever the confusion as to what specie of fly was imitated, now that its scientific name was definitely established; (5) furnish information as to when this particular species would appear year by year over the water; (6) enable the angler to know before starting his fishing trip just what particular

(Turn to page 27)

While all this was going on, the bass fishermen of the country were learning that black bass, both largemouth and smallmouth, were and are excellent fly-rod fish. Will Dilg and Call McCarthy were experimenting with Cal-Mac Bugs and Wilder-Dilg Feather Minnows in the upper waters of the Mississippi River, as was Ozark Ripley with his cork-bodied "spatter bugs." The fly rods then available were not satisfactory. I know from personal experience that there was no such thing as a suitable bass-bug rod on the market in 1915. Salmon rods, yes, but no bass-bug rods. As a matter of fact, few tackle dealers knew what bass bugs were, much less what to offer in fly rods to handle these lures. In desperation, I bought some glued-up sticks from the old jobbing house of Abbey and Imbrie (later taken over by A. G. Spalding & Bros.) and put together my own bass-bug rod. This affair was ten feet long and it weighed slightly over six ounces. The taper was uniform throughout and the action quite slow but with plenty of power.

Of course, this rod was a makeshift, but it turned out to be a surprisingly good one. With it I caught literally thousands of bass all the way from northern Maine down to southern Florida and west to the bayous of the Mississippi. It gave me exactly what I wanted—a slow, powerful rod that would handle a bass streamer (that's right—I was tying my own bass streamers back in 1918, long before the name was invented) or a bass bug for me at reasonably long distances all day long without tiring my casting hand.

As the popularity of the fly-rod lures for bass increased, gradually the manufacturers began to respond to the demand. They did so, however, in a rather slipshod way. On the tackle counters of the country there appeared what were then called (and still are by some makers) "bass-action" rods. These monstrosities were nine-foot affairs—cheaply put together, cheaply priced, heavy and cumbersome.

Half an hour's casting with one of them would cripple the ordinary casting hand for a week.

In vain I appealed to the manufacturers of bamboo fly rods to turn out satisfactory models for bass-bug fishing. Nothing doing. They considered my specifications for rod design entirely too radical to be practical and continued to turn out "bass-action" models in heavy, nine-foot lengths. Bass-bug fishermen, not having seen and used good rods, bought these things and used them. What else could they do? With the exception of a few odd "salmon dry-fly" rods, costing anywhere from seventy-five dollars up, there was nothing else available.

Back in 1920 I was not working at my present job, that of being an "outdoor writer." So far as I know, there were no professional outdoor writers then, in fact, the term "outdoor writer" was not coined until at least ten years later. However, I was interested in good fishing tackle, so I took on the thankless task of public education in fly-rod fishing for bass. At home I taught not less than fifty men how to use fly-rod lures for bass. Two of these were tackle dealers. It was not very long before it was possible to buy reasonably good fly-rod lures for bass at our local tackle counters. These men and the two dealers added their voices to mine in the demand for good bass fly rods.

When my travels took me to new fishing waters, it was almost inevitable that within a few days I would find myself in the same boat with the local "hot shot" fisherman. Skeptical, at first, these men soon came around to my way of thinking. After all, you can't quarrel with results. They learned, the hard way, that their tackle was entirely unsuited for the job in hand. Gradually the manufacturers began to turn out better rods.

At long last, around 1935, William Mills and Son agreed to work with me to turn out a satisfactory, *standardized* bass-bug fly rod. They built, somewhat along the same lines as my old homemade rod, two

experimental models, both of them ten feet long. I took them with me to the upper Delaware River and tried them under actual fishing conditions. After considerable thought and several days with each of them on the stream, I took them back to Mills. One of them—the better of the two—we shortened, taking an inch from the top of the butt section, an inch from the lower end of the middle joint, and an inch from the top of the tip joint. That did it. I had the rod I had been trying to find for at least twenty years. While it was not perfect, it was far better than anything so far. This rod, after the alterations, was nine feet, nine inches long. Thus was born the Knight 99 Bass Bug Rod. The model, now a standard item in Mills' catalogue, has been somewhat improved by applying the "parabolic" principle to the middle part of the rod, but basically it is much like the original 99. I still have the first one and use it constantly.

From 1920 until around 1930 it was not easy to find a good trout rod. This was brought home to me quite forcibly in 1931 when a friend of mine asked me to select what I considered to be a top-grade trout rod for him. I agreed and set out to look at what the New York shops had to offer. I tried them all. They showed me "wet-fly rods" and "dry-fly rods," all of them extreme designs. In all, I must have inspected not less than one hundred fly rods. At long last I found a good trout rod at the old retail store of Folsom Arms Company on lower Broadway—a Payne with an action comparable to the rods that we have today. That surely is not a good ratio—one good rod to about one hundred poor ones.

That same year a man walked into the Wall Street office where I then worked and asked for me. Under his arm he carried seven aluminum rod cases. He said that he had been sent to me by Dr. George Parker Holden in the hope that I would sponsor him at the club rooms of The Anglers' Club of New York so that he could show the members his fly rods and possibly sell some of them. That was the first time I met Everett Garrison.

(To be concluded)

Fish Commission Explains Closing Of Streams for Mid-Season Stocking

In some instances, when trout are stocked during the open season with takable fish, the stream is closed to fishing for a period not to exceed five days. This is in accordance with the Fish Code, Chapter 12, Section 254, as amended by Act 125, approved June 10, 1935, and Act 83 approved May 6, 1943.

It has been customary to close these streams, when stocked during the open season, only when requested to do so by the sportsmen's organization assisting with the plantings. It is therefore necessary that the Central Field Office, where the shipping orders are made up, have these requests for closing well in advance. This is important because posters must be prepared, and inquiries sent in by anglers concerning certain streams

must be intelligently answered. To reply to these requests inaccurately would be unjust to the fisherman since he might travel a great distance only to find the stream posted because of midseason stockings.

At a recent meeting of the Fish Commission it was agreed:

(1) That all requests for closing of trout streams when stocked during the open season in 1952 must be made by the organization now assisting with the planting.

(2) That this request must be in the Fisheries Research Laboratory, State Fish Hatchery, Bellefonte, Pennsylvania, before April 15.

Compliance with these agreements will insure coordination and facilitate the midseason stocking program.

Philip E. Angle Reappointed to Commission by Governor Fine

The PENNSYLVANIA ANGLER and his many sportsman friends throughout the state congratulate Mr. Philip E. Angle on his reappointment as a member of the Pennsylvania Fish Commission by Governor John S. Fine on January 14, 1952.

Appointed in 1950 by former Governor Duff, Mr. Angle has devoted much time and effort to the conservation activities of the Commission during the past year. Forty years of outdoor activity, particularly in the northwestern sportsmen's groups has further added to his popularity. He is a graduate mechanical engineer from the University of Pittsburgh.

We sincerely welcome his return.

FISH WARDENS HOLD REGIONAL MEETINGS

During the first two weeks of February, Chief Enforcement Officer Mr. W. W. Britton met with each of the District Supervisors and the regular wardens of the six districts of the State.

The purpose of these meetings was to discuss the problems found in the various districts and to coordinate more closely the activities of the warden force with the overall program of the Pennsylvania Fish Commission.

Present at the meetings were representatives of the fish cultural, biological and stream acquisition programs of the Commission who discussed their work as it relates to the wardens.

The day has long passed when the sole duty of a warden was to enforce the law. Today he must keep abreast and assist with such general activities of the Pennsylvania Fish Commission as fish stocking, biological investigations of the waters in his area, the detection of stream pollution and many others. An important part of his work is of an educational nature since he is frequently called upon to speak to sportsmen's groups, schools and other organizations.

Thus today's fish warden is a versatile man. In addition to his duties as an enforcement officer he must be somewhat of a public speaker, a student of nature, an authority on fish and fishing, a typist and a general trouble shooter. Together with his many other technical duties, give the fish warden a busy and interesting life.

EMERGENCE DATES INSECTS (Continued from page 25)

insects he might expect to find over the trout streams, and (7) open the way for additional hobbies, thereby promoting longer life.

In part, much of this has been brought about but much still remains to be done. As mentioned the PENNSYLVANIA ANGLER was the pioneer in this movement. It was followed in 1935 by Preston J.

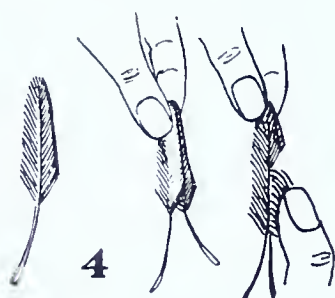
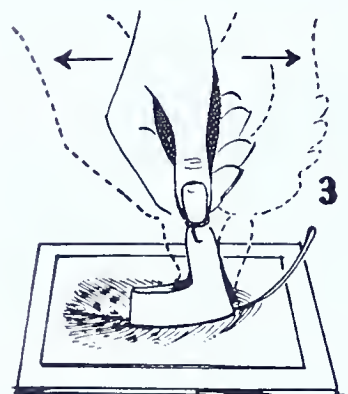
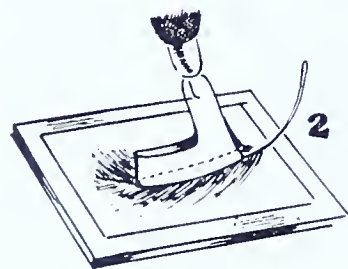
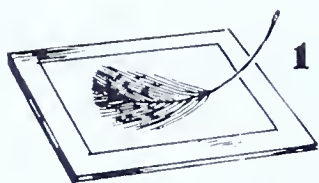
Jennings' "A Book of Trout Flies"; Chas. M. Wetzel's, "Practical Fly Fishing," 1943; Art Flick's "Streamside Guide to Naturals and their Imitations," 1947 and Alvin R. Grove's "The Lure and Lore of Trout Fishing," 1951. The latter work published by the Stackpole Company in Harrisburg, Pa., is highly recommended.



- TACKLE TIPS -

THE NEW WINGS FOR DRY FLIES—

By Don Shiner



WHEN one sees a May fly adrift on its raft, one of the eye catching features of this insect is the beautiful yet fragile upright wings. Some of these are transparent, others have distinct shades of cream, slate or dun and are translucent with a tiny net work of veins clearly showing.

One of the arguments raging today concerns the necessity of wings on dry flies. One group contests that the upright wings can not be seen by the fish since they view the fly from below and at best their vision is not clear, certainly not clear enough to distinguish the translucent wings on a fly, hence, why go to the bother of tying this appendage to the hook. It is one of the most difficult parts of the dry fly to make and at best, the wings soon turn into a straggly bunch of fibers which in no way resemble the wings on the natural fly.

Yet it is true, the removal of the wings seem to render the fly incomplete, without which many fishermen loose faith in the creation. If wings inspire more faith in them, go ahead and use winged flies and turn a deaf ear to those critics who feel otherwise.

The type of wing on a fly, however, has a direct bearing on the length of time the fly will resemble an insect. Wings made from quill feathers have, in the past, been most popular. The fibers of these feathers are tongue and grooved much like flooring. Once these tongue and grooved feathers are broken apart, the resemblance to wings has ceased. Various applications have been devised to cement these fibers together thus, in theory, holding them rigid, but none seem to work very well.

This factor has lead to countless experimentations by many tiers in search of some other material to substitute for the quill. Bunches of hair, tips of hackle feathers and even plastic materials have been used, some with great success. Recently a new type has been added to dry flies and it is one of the most indestructible wings yet found which is both lasting and very natural looking. These new wings last even after repeatedly catching trout. Furthermore, most every type feather from practically every kind of bird is suitable for these cut wings.

These wings are made with the aid of a small cutting tool which cuts them identically. It offers the fly tier a chance to utilize an entirely new array of feathers, feathers that here-to-fore have been discarded.

The cutter is amazingly simple both in construction and use. It is simply a sharp knife which is bent in a 'V' shape and beveled so that the cutting edge rocks over the feather, cutting a wing in one clean stroke. The 'V' shaped cutter gives an almost identically shaped wing found on May flies.

Regardless of how roughly these new cut wings are handled, they will remain in perfect condition, yet, they are soft and pliable and stand upright on the fly in a very cocky manner. The strength lies in the utilization of the center quill of the feather. Pheasant, grouse, partridge, quail, goose and duck feathers can be used.

Feathers normally curl and by placing each wing back to back, they form a nice pair of divided wings. These are tied to the hook in the conventional manner, interlocking the thread in the front and rear of the stems. Tied in this manner it is almost impossible to pull them from the hook even after rough treatment while landing one, two or even a dozen trout consecutively, they remain in perfect condition.

This new tool, known as a wing cutter, adds a new chapter to fly tying. It is one of the greatest boons to the fly tier since the invention of the vise. No longer is there difficulty in making divided wing flies which have lasting quality, for this cutter makes them with such simplicity that amateur or professional alike can turn out superior wings, wings that almost duplicate those beautiful yet fragile appendages on the May flies.

This is the new wing cutting tool. It is welcome news to fly tyers troubled by setting wings properly on a dry fly.



The Bennett Bates Wing cutter tool in operation. (Drawings—courtesy of E. Hille, Williamsport, Pa., distributor of the wing cutter.)

of the hook. A streamer fly or bucktail should be dressed on a long shanked hook and the entire wing (or dressing) should not be more than one and a half as long as the hook itself. Many fish nip at the tail of a fly. If strikes are missed frequently, get out the scissors, because it is probable that friend trout is not getting the hook, but only a taste of feathers!

Finally, experience proves the wisdom of using properly dressed, tried-and-true patterns, rather than "creations" of fly tiers with an inventive frame of mind. True, good, new patterns are born every once in a while but, when in doubt,

remember that the well known old stand-bys usually are the ones that bring home the bacon.

Unfortunately, many of the well known patterns are tied incorrectly. The other day, for example, a police cruiser stopped at my door. I breathed a sigh of relief when the gendarme held out four samples of the famous "Grey Ghost," obtained from four different tackle shops. He wanted to know which was correct, so he could use it as a model in dressing duplicates of his own. I showed him a "Grey Ghost" tied by Carrie Stevens, who invented the pattern. It was quite different from

the four samples he had purchased. He read the description in "Streamer Fly Fishing" and said he wouldn't need to borrow the fly because the information in the book was accurate and complete. Later, he returned with a dozen "Grey Ghosts" tied "as the book said." We both compared them with Carrie's original, and they were perfect! Maybe the erroneous interpretations from the four tackle stores would have caught just as many fish but its nice to know, when we shell out our dough, that we are getting what we are paying for!

The Outdoor Writer's Part in the Angling Program

(Continued from page 21)

Newspapers cannot spare the space to publish the papers in full, so a great amount of this information is filed in waste baskets. But here is where the outdoor writers have an opportunity to be of good service to the Commission and the fishermen. They can take the lengthy reports and by dressing them down in their columns, get the information to many thousands of their readers.

The best outdoor writers simply use every possible means of getting authentic information on fishing, hunting and their related activities and in turn, disseminate it to the greatest possible number of persons.

There is no one in better position to influence public opinion in constructive thinking towards the forming of legislation and its enforcement, for conservation of the natural resources, than is the outdoor writer.

My mail tells me that many people who are not interested in fishing or other outdoor sports, are fairly regular readers of my column. They are interested in wild-life to some extent, but I find that they read with deep interest, columns dealing with soil, water, forests, and minerals.

The letters and telephone calls a writer receives is of great value

as guideposts. Through them, I have been able to serve a great many of the fishermen and others interested in outdoor sports. While supplying answers to the many questions, I have added to my own knowledge as an outdoor writer. Many of them, I could not answer until I had dug them out of my files or information from the Commission.

When a fisherman writes or telephones me to ask about some technicality of the fish law, I make it a strict duty to give him the authentic information he desires. I never feel embarrassed when not able to answer questions off the cuff, and I'm sure that the persons asking the questions want the correct answers regardless of how long they have to wait.

I would not want to be responsible for any person running afoul of the law because of guesswork on my part. I'd rather they would criticize me for not being able to answer their questions than to blame me for giving them guesswork answers which resulted in trouble or fines.

For years, I have encouraged fishermen to contact their local fish wardens for the latest information in fish law changes. In many cases, they do go to the officers, but it seems the majority are somewhat

hesitant about seeking out the wardens.

They seem to think of the officers as persons to be avoided even though Pennsylvania is blessed with a staff of wardens of the most courteous type to be found anywhere. I think the outdoor writers can do something to encourage more friendly relationships on that score.

The outdoor writer can and will, be of valuable service to those charged with administering fish and game programs if given the opportunity. If the Commission places confidence in the writers, as do the fishermen, wonderful co-operation can be had between the two groups.

The present relations between the Commission and the fishermen can be classed as excellent. But the approach to problems where differences of opinion arise can be made even more cooperative.

8

**Is The
Daily
Creel Limit
On
Trout!**

8

WHAT'S NEW IN FISHING BOOKS

We spent several evenings reading Hal H. Harrison's *Outdoor Adventures* (The Vanguard Press, Inc., New York, N. Y.) to the children. We had trouble convincing them in our old age breath is scarce, asthma is plentiful, and so impossible to finish the book at a single sitting.

Fact is, though the book is small (125 pages), it contains much in the nature of photographs and adventures into the world of natural history. One cannot slide lightly through the stories without pausing to take thought. This does not mean to imply the volume is not smooth reading for it is just that.

Mr. Harrison, with children of his own, can more nearly approach the slant of the small fry in their quest for new adventures, however small they may appear. This Fall we (the children and I) together watched the dying gasps of the adult praying mantis which one of the kids found on the front porch. Number 2 daughter insisted that we have the creature stuffed much like the owls and ducks in her daddy's den.

There is much human interest inserted in *Outdoor Adventures* and the touch of Hal Harrison the newspaper man is to be seen throughout its pages. Aside from adding a fine work to the growing juvenile outdoor library, it provides excellent family reading enjoyment, an art that has been lost for too long in American homes.

The Editor's Angle

Dear Sir:

I am a subscriber to the PENNSYLVANIA ANGLER and I was much interested in reading an article on Page 14 of your November 1951 issue entitled "Are Waders Death Traps."

This article is fine as far as it goes but there is a lot of trouble you can get into with waders full of water, that Mr. Angst doesn't cover and which I think should be covered. Some people might misunderstand the article and the arguments presented and go into a river over their head with a swift current and quickly find out Mr. Angst's arguments do not apply.

I am sixty-eight years of age and have fished all my life; up to a few years ago I usually had my waders built to order so that they came up under my arm pits because my favorite trout stream in northern Michigan was deep heavy water. I have fallen in with my waders on many times—sometimes shallow water, sometimes deep water, but as long as it was not over my head, or if it was for only a comparatively few feet, I have had no trouble, and Mr. Angst's opinions are correct.

However, let me tell you briefly what happened to me which I believe will show you that you can get yourself into a very serious situation by going over your head in a swift current and your waders full of water.

About ten years ago another man and I fished what we call the "four mile stretch" on the Fox River in northern Michigan; the Fox River isn't an especially swift river, but it is deep and has a very heavy push; you can't wade up this stream—there are many deep holes through which the current goes. The bottom of the stream is sand. If you get into one of these holes and find yourself slipping and the water is near the top of your waders, there isn't the slightest use of turning around and trying to go back up stream because you will just dig yourself in right up to your eyebrows. The best thing to do is to turn around and go through the hole, even if your waders are full of water which isn't anything very serious because the hole is usually only a few feet wide.

When you fish the "four mile stretch" referred to, you have to go on through for the entire distance because coming back is through a wilderness of swamp, dead falls, etc. When you reach the end of the "four mile stretch" you are on the west side of the Fox River because coming in from the east side is the East Branch of the Fox—very deep with a very bad muck bottom; therefore, you have to cross the Main Fox below where the East Branch comes in; the river at this point being about 70 feet wide and deep with a very heavy current.

The man with whom I fished, as far as crossing a log over water, is a human monkey and good enough to be a circus acrobat. He crossed on a log several feet above the East Branch; this log was not over 5 inches in diameter and below him the water was at least 12 feet deep; this man is twenty years younger than I, but I couldn't have done what he did thirty years ago.

The day was the first of May and this means cold weather and water in the northern peninsula of Michigan; I had on heavy wool underwear, heavy wool shirt, heavy wool stag lumberman's shirt, canvas wading jacket, large willow creel with 10 good sized trout in it, and my high waders; I had crossed the same place several times before and knew that I might go an inch or two over my waders—in other words, right up to my shoulders; therefore, I got a strong birch pole 9 feet long and tied my waders as tight as I could around my body, which doesn't mean much when you have on heavy clothing as it is not possible to make it tight.

I noticed Mr. Angst had on a sleeveless shirt which is considerably different than heavy clothing.

I started out and got along all right for about 20 feet when all of a sudden the bottom fell out; neither my feet or the birch pole touched bottom. I had my fly-rod taken down and the joints tied together—this I tried to throw to shore but didn't succeed. My waders promptly filled up with water and I knew I was in for trouble, because 200 feet down the river was a floating log jam—I had been down there previously to see if I could cross on it. Due to the weight of the water in my waders, my feet hung straight down and I had to do all of the swimming with my hands; the creel, of course, was a serious handicap. After swimming about 75 feet across the current, I finally made shore. If I had had to swim 50 feet more I would have drowned.

The next morning we came back down with a garden rake, tied a birch pole on the handle and recovered my fly-rod which was in about 14 feet of water; my hat which had a lot of flies in it had disappeared under the floating log jam. Strange as it may seem, we

New Revised Short Tax Form

How much did you make last year?

How much do you have left?

SEND IT IN!

walked down to this log jam and saw another log jam further down the river which was not floating; we crossed on this, came back up to the floating log jam, made two passes underneath with the garden rake and out came my hat; this is probably where I would have been—under the log jam, if I had gotten down that far.

The point I want to make is that without waders, it would not have been an easy job the first of May, but with waders filled with water, it was a difficult and serious job. There is a big difference—trying out waders in a swimming pool or a lake and trying them out in a river with a swift current where the water is over your head.

Yours very truly,

RAYMOND E. HERMAN

Chicago, Ill.

Dear Editor:

The Blawnox Sportsmen Club of Blawnox, Pa. have been fighting for pure streams ever since we started in 1935.

We sure are happy to know the streams are being cleaned. The Allegheny County Commissioners are planning a big park in our end of the county (eastern sec.) for 70,000 people, with all kinds of water sports. The question they ask, "When will this part of the Allegheny River be pure enough to allow the people of Allegheny County to have a park of this kind?"

One of the biggest sources of pollution is the Clarion River. At the present time it is being cleaned up. When the river is pure again the other streams will fall in line. The Clarion Buck Tails and the Allegheny County Sportsmen League, Butler County and Armstrong County Leagues are in there fighting so we people of the Allegheny River Valley can have the pure water the Creator wanted us to use, as he made it.

In the September issue of the ANGLER are some wonderful pictures of the once dirty silt-filled Susquehanna River. At the September Meeting of the club we members spent the night talking how the Allegheny River would be right now if it were like that river.

There are a lot of Yacht Clubs on the river here. The people that have motor boats sure have a lot of trouble with engines as the water is very polluted, acid, etc.

THE PENNSYLVANIA ANGLER was the Magazine that made fly and plug fishermen of the men here in the River Valley who were 99% bait fishermen, thanks to the old writers, like Charley Fox, A. Sweigert, C. M. Wetzel, Casillo and many, many others who have made the ANGLER the fine magazine that it is.

Save bait, use lures. If you want more fish kill less. I have been always ending my little say at any sportsmen's meeting that I attended with a plea, "Take a boy or girl along fishing, if you do not have any of your own take some one else's. Please do not hand him or her a reel or pole that you would hate like heck to use, (say one that has a reel like a coffee grinder or casting rod like a broom stick)."

All fishing tackle can now be bought by using the lay-a-way plan. Three dollars with the order and so much a month, then when the month of June rolled around I would receive the tackle in time for the boy or girl to practice on the lawn or at the river. That way we have another one in our clan who will learn to love the great outdoors.

The pictures I am sending you were taken by me at our camp on Route No. 62, called the scenic route of the Allegheny River that a lot of motorists use from our state and Ohio in the fall to see the leaves in the fall. (12 miles from Oil City). The reason I did not have anybody pose in the pictures, I wanted every one in the club to have credit for fighting for pure streams. This part of the Allegheny River is very good for Bass, Muskies and Pike, also a very good place for Deer.

May your aim be true, may you have many tight lines for the year of 1952, is the wish of

ADAM J. SOCHER

President of the Blawnox Sportsmen Club
Blawnox, Pa.

"Fill 'er up—check the oil—and change the sheets!"



BOYERTOWN CLUB REPORTS SUCCESSFUL STOCKING PROGRAM

The Boyertown Rod and Gun Assoc. Inc., reports a successful stocking of bass, catfish, sunfish, roach and carp in public fishing waters within a radius of 8 miles of their location.

Raising the fish in Seasholtz's Dam, leased free to the club by the owner, the club has carried on its program since August 1947. The bass stocked by the club this season ranged in size from 8 to 12 inches.

Arthur Miller is President of the organization and LaMar Smith who made this report, is Secretary.

Shenandoah Fish and Game Protective Association In Action

The Shenandoah Fish and Game Protective Ass'n of Shenandoah, Pa. is one of the oldest clubs in the State, organized in 1902 are doing things in a big way. Ten years ago they bought 525 acres of land in the Ringtown Valley and the Little Catawissa creek running through the center of the land which is on the approved list with the Pennsylvania Fish Commission.

The Little Catawissa creek is not only stocked by the Fish Commission but is also stocked by the Shenandoah Fish and Game Protective Ass'n every year for the last six years. The Club buys Brown and Rainbow 1400 from 12 to 16 inches and stocks along with the Fish Commission, and is OPEN TO THE PUBLIC to fish, (we are not selfish). On July 3, 1951 200 extra fish were bought 14 to 16 inches for the pool in front of the Club house and was opened to everybody who wanted to fish. Prizes were given out for the biggest fish caught, cash, rods, lines, flies, landing nets, waders, boots.

At the present time plans are on the move to build a dam on the lower end of the Little Catawissa creek which will run into big money, but it will keep the fish from entering into the Big Catawissa creek which is polluted.

Four rearing pools, picnic grove with cover for everyone, a big pool for boys and girls under 14 years old, also stocked with trout out of club funds, with plenty of parking space for everyone.

Picnic grove can be rented but you must make arrangement with the Stewards Lenard Przybilick and Jos. Michalowski at the club house one mile North of Ringtown.

Officers of the club are, President, Leonard Wentz; Vice-President, Jos. Miller; Recording Secretary, Frank Thomson; Financial Secretary, Jos. Tee; Treasurer, Jos. Zuber; Trustees, John Magalingo, Jos. Pernetis, John Bender, Geo. Jelly, Bob Babatsky.

HYDRO FISHING CLUB ANNOUNCES 1951 CONTEST WINNERS

Clinton A. Youtz, 715 High Street and Raymond Eichelberger, 836 North Queen Street were among the twelve individuals who won awards in the annual Hydro Fishing Club contest sponsored by the Pennsylvania Water & Power Company and the Safe Harbor Water Power Corporation in cooperation with the Federated Sportsmen of Lancaster County and the York County Federation of Sportsmen's Clubs.

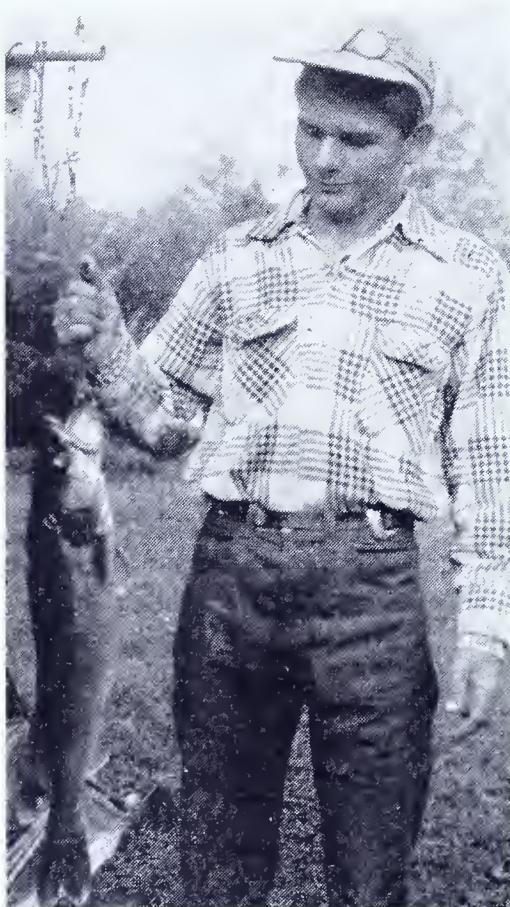
Prizes totalling \$200 are awarded by the power companies to Fishing Club members catching the three largest fish in four classifications, bass, salmon, catfish and carp. Mr. Youtz's winning catfish, which brought him \$30 and was caught at Safe Harbor, weighed eleven and three-tenths pounds and was thirty-one inches long. The salmon which brought Mr. Eichelberger a \$5 third prize was five and six-tenths pounds and twenty-six inches in length.

Three fishermen from York also participated in the awards while Franklin Kissinger, of Columbia, who took top honors last year with three firsts and a second, this year had one first, a second and a third.

Contest judges were Ralph McGuigan, President of the York County Federation of Sportsmen's Clubs and Elmer Burkins, also of that organization; Clayton Shenk, president of the Federated Sportsmen of Lancaster County and Robert E. Fasnacht, Secretary of that organization.

Among those invited to the judging were Norman Welsh, of Long Level; Byron Resh, of Wrightsville; S. M. Fife, Airville and B. F. Sherick of Washington Boro. These individuals cooperated with the sponsoring groups by lending their services as "weighing in" posts for the contest.

The past season marked the fourth year for the contest for Hydro Fishing Club members. To qualify, a fisherman must have a Pennsylvania State Fishing License; be a member of the Hydro Fishing Club (membership starts on the date on which the Sportsmen's Clubs approve the member's application); observe all Pennsylvania State laws governing the taking of fish entered in the contest and use a hook and line for catching the fish. Entries must be caught in the Susquehanna River itself between the Columbia-Wrightsville Highway bridge and the lower end of the Holtwood tailrace, opposite the downstream end of Piney Island.



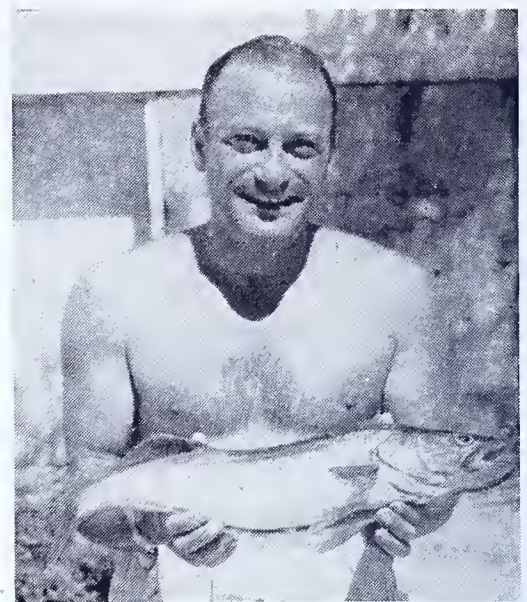
Donald Anderson, Canonsburg, Pa., displays his 25-inch, 5¾ lb. walleye, caught by his Dad this past season at the Tidioute Bridge.



This record-smashing largemouth bass, weighed 8¾ pounds and caught by Lester P. Kern of Lebanon R. D. 3, is reportedly largest bass ever taken in Lebanon county waters. Kern snagged the big fellow while fishing in Strack's Dam, northwest of Myerstown.



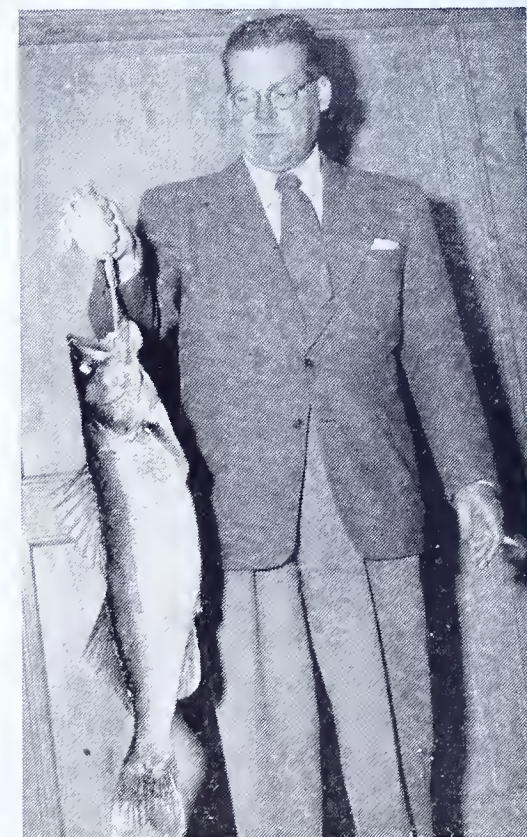
Youngsters, John and Darwin Zimmerman went fishing one day last summer and came up with this catch of pickerel. Mrs. Harry Lewis, Frackville, Pa. sent in the photo of the two experts.



Jason Rosenberg, Pittsburgh, is mighty happy about this 8-pound Old Bleary caught at Conneaut Lake in late summer.



Assistant Postmaster of York, Pa., E. S. Glatfelter, came up with this 27½-inch, 7½-lb. walleye, fishing at Boeckel's Landing, York county last Fall.



B. N. Huey, Jr., Sharon, Pa. came up with this 11-lb. walleye from Shenango River.

**DAILY CREEL
LIMIT
ON TROUT
1952 SEASON**

8

8



The Grand Canyon . . . erosion on a colossal scale.

Erosion

One doesn't study this old earth of ours very long before he realizes that the elements seem determined to drag the dry land down into the seas. The oceans are constantly tearing away at the shore lines. Thousand of streams are wearing away their banks. Sand bearing winds sandblast solid rocks. Ice of glaciers gouge at the shoulders of mountains.

Where all the low places in oceans filled with the high places of continents—if all the land were leveled—there would be no dry land, and water would cover the earth from pole to pole. All would be one big ocean!

Water, the Chief Villain

The endless water cycle, necessary as it is to men, contributes more to the erosion of the earth than any other single agency. Constantly water vapors evaporates from the oceans, and in the form of clouds, moves inland. Eventually the water vapor returns to the earth in one form or another, usually as rain or snow, and ultimately finds its way by rills and rivers back to its ocean home.

Eroding Ability

The speed at which a stream erodes depends upon three factors: the tilt of the stream bed, the composition of this bed, and the tools the water carries. The steeper the grade, the more rapid the movement of the water and the greater its cutting power. The softer the materials in its bed, the more the water will carry away. Streams cut slowly that slide over granite, but they eat rapidly into soft, sedimentary rock. The most outstanding example of rapid water erosion

is the Colorado River in Northern Arizona. Here at the Grand Canyon the rims are as much as 14 miles apart and the river roars down its twisting course over a mile below. A few summers ago I hiked down a trail on the North Rim to the river. The chocolate-colored water "too thick to drink and too thin to plow" was racing downward. A ranger on duty there told me that a million tons of mud washed past the spot where we were standing every twenty-four hours!

When a geologist (or a man who

studies rocks) speaks of the tools a river carries, he means the sharp sands and rocks carried by the current, for these help to widen and deepen the trough down which the stream runs.

Carrying Ability

Rivers carry materials in four ways. Light debris is floated away. Heavy boulders are rolled along the bottom. All waters carry a certain amount of minerals in solution. But the greatest amount of material transported by a river is the sediment that it carries in suspension. To accomplish this commonest type of erosion, the speed or velocity of the water must be great, for when water slows down, the tools it carries are dropped. Sand bars, mud islands, and deltas are formed where water loses its speed.

Erosion in the Keystone State

Pennsylvania is crossed by a series of mountainous ridges, and wherever there are sharp contours, erosion is inevitable. Fortunately some of our mountain land is forest covered, and the roots and duff act as a sponge to hold rainfall and release it gradually. Fortunately many farmers are realizing each year the value of contour farming and strip cropping so that each growing season more and more hillside farmland is being planted and cultivated scientifically with the thought of keeping water erosion at a minimum. Our large rivers are still muddy and polluted, but much has been done to improve them and there are plans for continued improvement.

Water erosion is slow when the bed rock is granite.



Photographs are through the courtesy of Union Pacific Railway

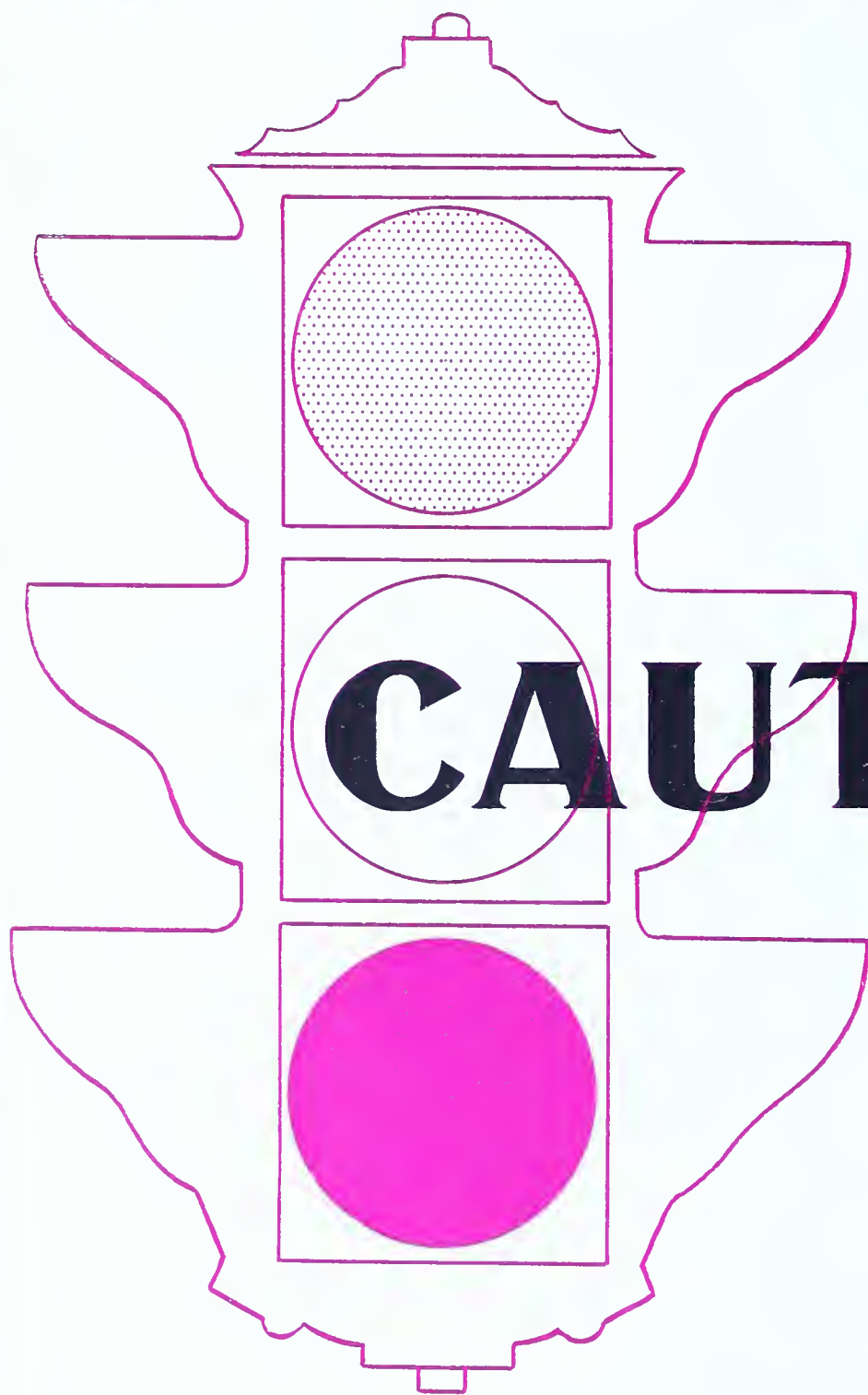


PENNSYLVANIA

Angler



APRIL
1952



CAUTION

**THE
DAILY
CREEL
LIMIT
OF**

TROUT - for the

1952 SEASON COMMENCING

AT 5:00 A. M.

APRIL 15!

8

COMMONWEALTH OF PENNSYLVANIA

HON. JOHN S. FINE
GOVERNOR

*

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APRIL—1952

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The Cover . . . STRIKE! Here's the answer to dreams of thousands of Pennsylvania anglers when the 1952 trout season opens at 5 a.m. April 15. George H. Gordon, official photographer of the Pennsylvania Fish Commission, after much patience recorded on film the thrilling smash of a BIG ONE at a fly.

—Back cover also by George H. Gordon



George W. Forrest, Editor

1339 East Philadelphia Street, York, Pa.

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LAKE PLEASANT

creel census

Fish Commission Checks Results of Experimental Trout Plantings in a Lake

By GORDON L. TREMBLEY

Chief Aquatic Biologist, and Staff Members of the Fisheries Research Laboratory,
Pennsylvania Fish Commission, Bellefonte, Pennsylvania.

PENNSYLVANIA, rich in trout streams, has very few public lakes in which trout occur naturally or are stocked. In the two upper corners of the state are a number of ponds and lakes which might be managed for trout even though they now support warm-water species. In some of them the population of warm-water fish is slow growing and fishing pressure is low since other nearby waters produce better results. To estab-

lish trout fishing in a lake where other lakes in the area offer only fishing for warm-water species would certainly provide more diversified fishing. This paper deals with the results of experimental trout plantings in such a lake.

Lake Pleasant, Erie County, was selected for this study (See Fig. 1). This is a natural lake of glacial origin at an elevation of 1301 feet and with an area of 60 acres. It is located about 15 miles

southeast of the city of Erie. The drainage area comprises three square miles. Although there are two small tributaries, the source is largely from bottom springs. Maximum depth of the lake, which empties into the Allegheny-Ohio River Basin, is 42 feet.

During the course of biological studies of Lake Pleasant in 1949 it was found that many species of warm-water fish, including large-mouth bass, existed in the lake. Apparently none of these was affording satisfactory fishing. Scale studies revealed that the growth of these species in Lake Pleasant was

Fig. 1—Lake Pleasant, where the creel census was conducted.



Species	Date Planted	Number Planted	Anglers' Catches	
			Percentage Caught 1950	Percentage Caught 1951
Brook	4/1/50	1800	60.4	1.5
Rainbow	4/1/50	1800	20.6	1.4
Brook	6/17/50	1800	24.5	2.1
Rainbow	6/17/50	None	...	...
Brook	11/22/50	1000	THESE FISH PLANTED AFTER CLOSE OF 1950 TROUT SEASON	23.7
Rainbow	11/22/50	1000		7.0
Brook	3/6/51	1800		32.6
Rainbow	3/6/51	1800		23.3
Brook	6/15/51	None		...
Rainbow	6/15/51	1800		14.5
			Total Percentage 1950 and 1951	
Totals	Brook	All dates	6400	37.7
	Rainbow	All dates	6400	17.9
	Both	All dates	12,800	27.8

Table 1. Planting Information and Anglers' Catches. Lake Pleasant, 1950 and 1951.

slower than in several other lakes of the region. It was realized at the outset of the experiment that the presence of a population of predacious warm-water species such as largemouth bass might affect the planted trout unfavorably. The degree of predation of these species upon trout is unknown but might be expected to diminish as the size of trout increased. Chemical analyses showed that dissolved oxygen values were relatively low in the deeper waters during a period of the summer. This is a natural condition found in many lakes and is caused by thermal stratification of the water. This factor is probably not of great significance. Other than this, living conditions for trout were considered suitable.

Fishery biologists recognize that the combination of marking fish before planting and conducting a creel census during the open season is the best method of determining the practical value of fish plantings. This method was used in the present experiment which began in April, 1950, and continued to the end of July, 1951. Thus the creel census extended over two open seasons for trout.

All trout in Pleasant Lake are considered to be stocked fish. Previous to 1950 only unmarked rainbow trout had been planted. For the purpose of determining which species would produce better re-

sults, both brook and rainbow trout were stocked. Before planting, each lot of trout was marked by clipping a different fin. Thus census takers could identify trout taken by fishermen as being from a particular planting. To test the importance of time of planting, trout were stocked at three different times of the year. The fish were all of legal size or larger at time of planting. The open season for trout in Pennsylvania is April 15 through July 31.

Table I gives information on all trout plantings and on anglers' catches. The highest total return from any planting was obtained from the pre-season planting of brook trout (April 1, 1950) in which case 62% have been returned to date. The comparable planting of rainbow trout yielded a total of 22%. Brook trout catches from the pre-season planting in 1951 were lower than in 1950 but still better than from rainbows planted at the same time. Mid-season plantings (brook trout in 1950 and rainbow trout in 1951) yielded less than pre-season plantings but again brook trout were in the lead. The single post-season stocking (November, 1950) of both species gave the poorest return to the angler of any planting over the two-year period.

On an over-all basis, brook trout gave a yield of nearly 20% greater than rainbow trout even though

equal numbers of each species were stocked.

Many questions arise from the results of such an experiment. Figures 1, 2 and 3 give the trends of anglers' catches over the two open trout seasons. Data on catches of warm-water species are included. To point out some of the more important findings and to supply information not given in the figures, a list of questions and answers has been prepared.

1. Which species of trout gives the better returns?

The creel census showed that returns from brook trout plantings were double those of rainbow trout.

2. Is the time of year important in the planting of trout?

Yes. Spring plantings (March and April) produce the highest percentage of fish creel. Fall stocking (In this case, the fish were stocked November 11) gives the poorest returns.

3. Which trout species provides fishing over a longer period of time?

Rainbow trout returns were lower, but tended to provide fishing over a longer period of time.

4. Is the natural reproduction of trout important in this lake?

Probably not, since the tributaries are very small and short.

5. When was the greatest fishing pressure on the lake?

During the early trout season when the average number of

anglers was 82 per day. In July this number dropped to 36.

6. Is the catch of the hold-over trout from the previous year significant?

No. Not more than 2 percent were creeled.

7. Are returns from trout plantings in this lake as good as trout plantings in streams?

There have been too few complete creel censuses on streams to answer this question. According to a general creel census conducted on Pennsylvania trout streams during the past five years, returns may be better in this lake than in the average trout stream but perhaps not so good as in our best and most heavily-fished streams.

8. What species of warm-water

fishes are found in the lake?

Bluegill sunfish, common sunfish, yellow perch, bullheads, black crappie, rock bass, largemouth bass, white sucker, grass (mud) pickerel, fallfish, killifish, darters, log perch, and yellow pike perch (low population, only two reported in two years)—in addition, ten species of minnows.

9. What warm-water species were most often caught by the angler?

Sunfishes made up more than half of the total catch of all warm-water species, yellow perch almost one third, black crappies about 8 percent. The remaining species comprised less than 5 percent each of the total catch of warm-water fishes.

10. During which months of the

creel census was fishing for warm-water species best?

In May and June, when surface water temperatures were between 60 and 70 degrees Fahrenheit.

NOTE: THE FOLLOWING QUESTIONS REFER TO 1951 RETURNS ONLY.

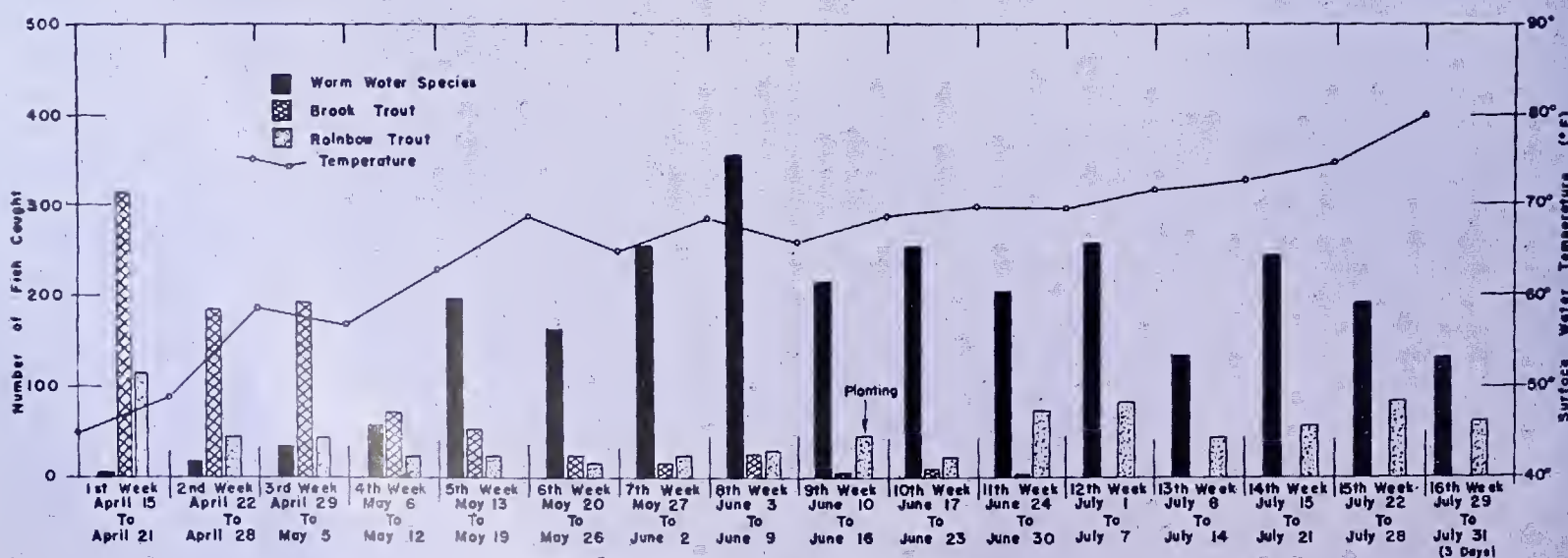
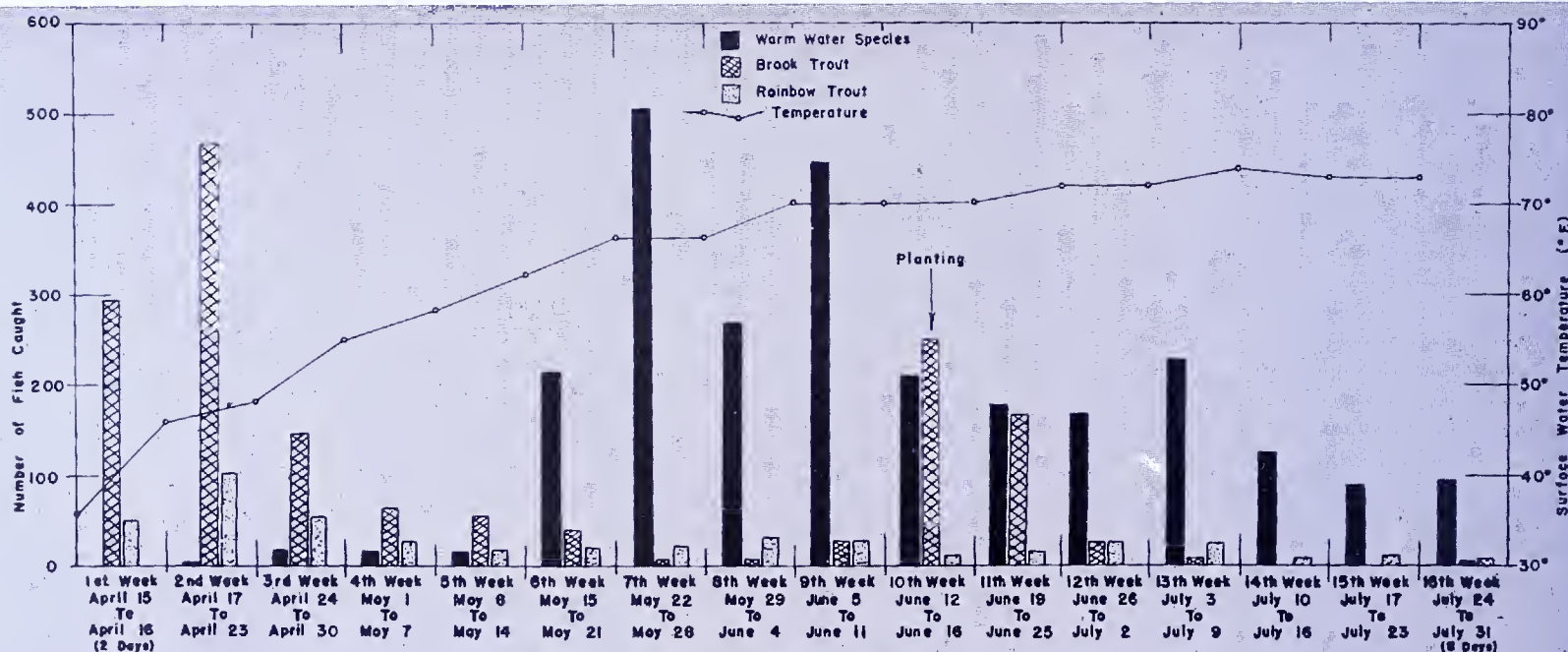
11. How many anglers fished the lake during the creel census?
5,882.

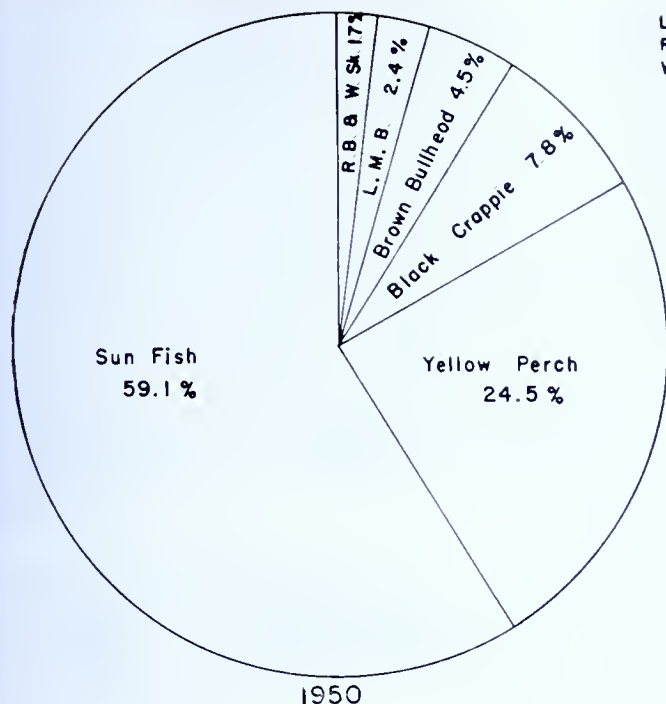
12. How many miles did these anglers travel?

178,665 miles, or about seven times the distance around the world.

13. What was the mileage traveled per fishing party?
52 miles.

14. What was the greatest distance any angler was from home?





L.M.B. — Largemouth Bass
R.B. — Rock Bass
W.Sk. — White Sucker

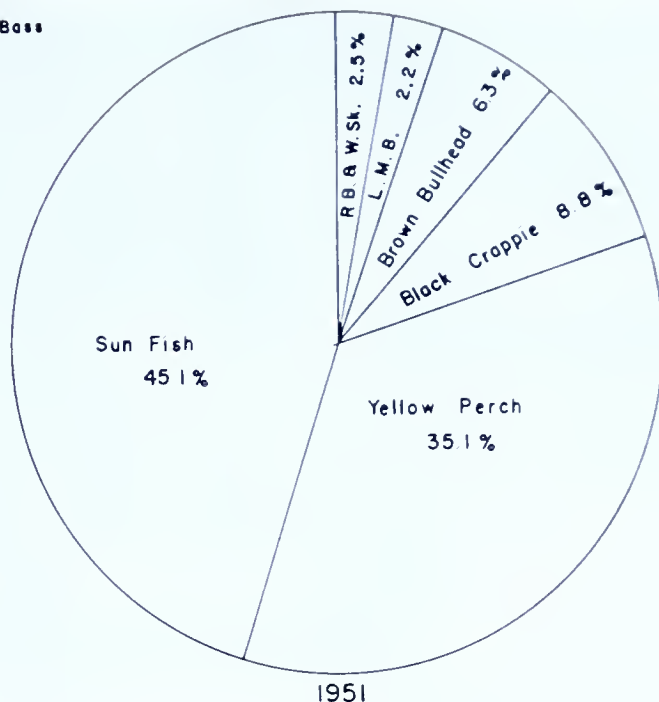


FIG. 4 ANGLERS' WARM WATER FISH CATCH
LAKE PLEASANT CREEL CENSUS



Fig. 5—Proof of the popularity of trout fishing is shown here—the opening day of trout season, 1951.

Perhaps the outstanding result from this experiment is that planted trout, even in the presence of bass and other warm-water species, gave a fair return to the angler. If Lake Pleasant could be managed specifically for trout there is a strong possibility that it would become an outstanding trout lake. Since the lake can not be drained, the only known method for eliminating the unwanted population of warm-water species is by the use of poison—a management tool used successfully by biologists in other states but denied our own biologists by an old Pennsylvania law. This is unfortunate as indications are that, in certain instances, management of lakes and ponds could be greatly speeded up and improved by its use.

One of the criteria for judging the value of any fishing water is the crop of fish which is removed annually from that water. The creel census method is at present our best means of making this determination. It is hoped that the future will see more creel census work in Pennsylvania in order that we may gain a better understanding of the production of our waters.

1,000 miles.

15. What states, other than Pennsylvania, were represented among the fishermen?

Ohio, New York, Kentucky, Virginia, Michigan, Kansas.

16. What percentage of the fishermen came from the city of Erie?

54.

17. What percentage of anglers traveled more than 50 miles to fish?

18.

18. What percentage of anglers creeled fish?

37.

19. What lure was used most often by anglers?

Worms.

20. What percentage of anglers used worms as lures?

71.

21. Which month had the highest percentage of worm fishermen?

June !

22. Which month had the lowest percentage of worm fishermen?

April !

23. How many kinds of lures did fishermen list on their creel census cards?

28.

Here is the list as reported by anglers. How many of these lures do you carry?

Worms
Flatfish
Bucktail
Minnows
Spinners
Wet fly
Dry fly
Spoons
Plugs
Salmon eggs
Nymphs
Popping bugs
Russell Lure
Bugs

Killer minnow
Dare Devil
Grubs
Crayfish
Mouse
Salamanders
Snails
"Lizzards"
White moth
Silver minnow
"Red stuff" (?)
Streamers
Pearl minnows
Leeches



Figure 1. Trout "mule"—a brook X brown hybrid.

GENETICS

and trout breeding

JAMES E. WRIGHT, JR.

Assistant Professor of Genetics
The Pennsylvania State College

Photo by
GEORGE H. GORDON
Official Photographer
Pennsylvania Fish Commission

CONCLUSION

IN THE concluding number of this series of articles describing the proposed new experimental trout breeding program, let us now consider some of the objectives of this program. Those which will be enumerated have arisen in discussions with the fish culturists and fishery biologists more directly associated with the Pennsylvania Fish Commission. Based upon knowledge of the accomplishments with similar objectives in other animals and in plant breeding programs, an approach to these objectives seems feasible.

One objective has already been mentioned—superior body form and coloration in brook, brown and rainbow trout. These are not easily-definable characters and any progress in attaining this objective must depend upon the fish cultur-

ists' arbitrary and personal definitions of what constitutes superior body form and coloration. Only then can rigid selection be applied toward these aims. Of course, there would be universal agreement on the elimination of certain freaks which periodically crop up in minor quantities. The pattern of inheritance for these is probably relatively simple as stated previously. Therefore, perhaps this phase could receive only incidental attention in the early stages of this program and still be accomplished rather easily.

Probably the most important objective to your Fish Commission is rapid growth rate, particularly in the first year of age. If strains of trout could be developed which all attained a length of 10-12 inches in one year from hatching time in December or January, considerable savings in feed costs alone would result. At present, numbers of trout must be held over for the second year to attain this size. But what seems encouraging is the fact that some individuals do reach such a size in the first year. These individuals should be a source (of genes) for a rapidly-growing strain.

Another objective of importance is increased egg production and greater viability of these eggs. There is ample reason to expect significant results. Along with increased growth rate, this has been one of the main considerations in the "selective breeding" work at the few federal and state hatcheries which have attempted it. In all reported cases these characters have been improved tremendously. A recent report from California shows some typical results with rainbow trout. By individual selection of breeders the average number of eggs per two year old female spawned has been increased by over 400 per cent. At the same time, in some individual lots a hatching percentage of over 90 per cent was obtained in comparison to less than 20 per cent in others. The latter is of particular interest since at some of the hatcheries in Pennsylvania, rainbow hatching percentages run as low as 25 per cent. At others this percentage is very much higher which indicates an environmental effect on this character. For this reason, most of

the rainbow eggs are incubated at the latter hatcheries. It is possible, though, that low hatchability is a genetic-environment interaction and can be corrected by rigid individual selection.

Another approach to improving hatchability is planned. Experiments will be conducted to determine if only one of the sexes is responsible for the low rainbow hatching percentages. Presently there is some indication that the quality of sperm is poor at those hatcheries where this trouble exists. If this is found to be true, it might be possible to transport sperm from another hatchery for fertilization. A method similar to that used in artificial insemination of cattle must be worked out for keeping trout sperm alive for long periods. Already Pennsylvania Fish Commission scientists at the Fisheries Research Laboratory at Bellefonte have made progress in this direction. They have been able to keep small quantities of trout sperm alive for a minimum of 12 hours through refrigeration.

Resistance to some of the common hatchery diseases of eggs and fry, as well as of larger fish, might be increased. Again, only incidental attention to this problem might be suitable at first. To accomplish the objective artificial disease infections would be necessary. Methods of producing these infections are still not absolutely effective.

It seems important also to conduct experiments on the ability of trout to withstand higher temperatures. Pennsylvania trout streams, generally speaking, are warming up. In the plans for the Benner Springs Research Station provisions are to be made for rearing some trout in waters of high summer temperatures.

Of course, there are a number of other traits which should and would receive attention. These might include general vigor, gaminess, stream survival ability, flesh color, and perhaps such things as wariness. But the ability to select individuals which are superior in these traits depends upon some standard or measurement. Obviously, determining these standards would be difficult as well as debatable.

Something might be gained from

a program of hybridization among our three species of trout—brook, brown, and rainbow. It should be possible to transfer some of the desirable characteristics from one to the other through repeated crosses and back crosses among these species. A barrier to this program is the high degree of sterility which occurs in these so-called "mules," however. On the other hand, recent reports from Sweden indicate that the brook-brown hybrid is a faster growing fish than either of its parents. At least, it is a most beautiful fish as can be seen in Figure I. In the future it might be possible to rear and stock this species hybrid if it should gain some popularity among anglers.

In the long-range plans for the breeding program it might be well to take a page from the corn breeders' book. Everyone is familiar with hybrid corn. The breeding method used has been extended to other vegetable and field crops and to chickens and hogs. In this method inbred lines are established through successive generations of close inbreeding and selection. Crossing the best of these inbred lines produces the superior hybrid. The theory behind these procedures is that, through inbreeding, numbers of different genes are fixed in a pure (or *homozygous*) state in the different lines or strains. These strains then breed true because of the homozygosity. When they are crossed, the differing genes affecting general vigor then "nick" to cumulate their effects and produce the hybrid vigor. It seems reasonable to expect similar fruitful results in trout breeding.

The possibilities of expanded breeding investigations with trout are great and should certainly justify their inclusion in the research program of the Pennsylvania Fish Commission. Successes of other animal and plant breeders give confidence that Pennsylvania anglers will benefit in terms of larger and more beautiful fish which certainly means greater sport and more exciting fishing. We should expect, then, that the possibilities outlined above will become probabilities in the not-too-distant future.

The Trout

from egg
to
creel

Photographs by
GEORGE H. GORDON

Official Photographer
Pennsylvania Fish Commission



1 ▲ In the fall, when the breeding season arrives, brood trout are tested for "ripeness" to be certain that the females are ready to be . . .



2 ▲ . . . stripped of eggs . . .

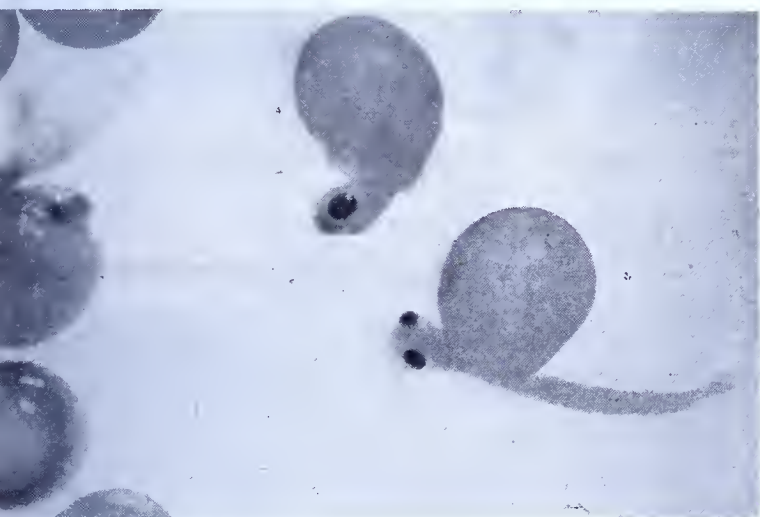


3 ▲ . . . and the males "milked" of sperm.

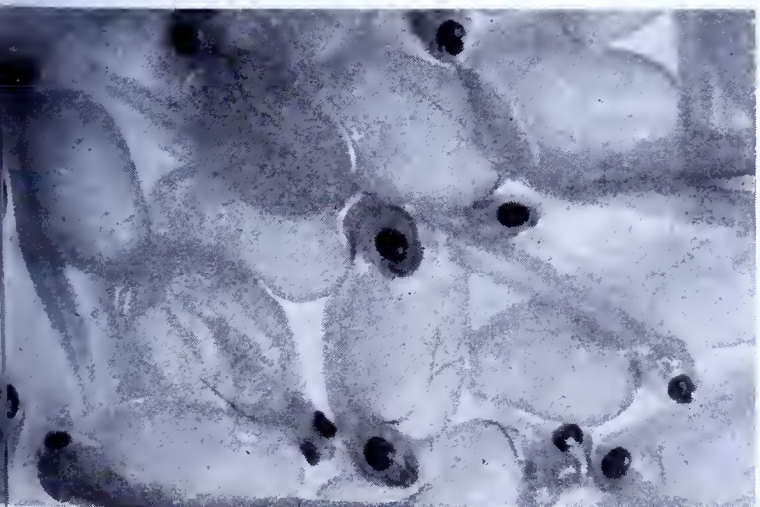
PENNSYLVANIA ANGLER



▲ After fertilization, the eggs are placed on wire trays in running water where the white dead ones are removed to permit . . .



▲ . . . healthy eggs to hatch . . .



▲ . . . into sac fry.



7 ▲ Soon after the yolk-sac is absorbed . . .



8 ▲ . . . the fry are cared for in troughs . . .



▲ . . . in hatchery buildings until they are transferred into . . .



10 ▲ . . . outside ponds, where they are fed and grow into legal-sized trout.



1 ▲ Then they are sorted . . .



12 ▲ . . . weighed . . .



13 ▲ . . . and loaded into trucks to be shipped . . .



14 ▲ . . . to the trout streams throughout the Commonwealth where they will provide fishing a recreation for approximately 650,000 licensed anglers.



15 ▲ A good sportsman's creel . . . not too many, but nice! If you would catch more trout KILL LESS!

Photo by C. R. Studholme



Spring Beauty (*Claytonia virginica*)



May-apple (*Podophyllum peltatum*)

Dogwood (*Cornus florida*)



Dutchmans-breeches (*Dicentra cucullaria*)



Signs of Spring

By ALVIN R. GROVE, JR.

Associate Professor of Botany, The Pennsylvania State College, and author of
THE LURE AND LORE OF TROUT FISHING (Stackpole Co., Harrisburg, Pa.)

—All photos courtesy of the Buckhout Laboratory Collection—

Some anglers are easily convinced spring has arrived with the first robin. Others, more skeptical, remain unconvinced until the dogwood spreads its mist of snowy blossoms through the woodlands. There is hardly an angler, however, who does not pause to admire our exquisite wild flowers, often wishing he could identify them. This article, by one of our leading botanists, should give a practical assist in identifying the more common plants.

As the dreary and bleak months of January and February finally spend themselves in the ever increasing warmth of the sun, there is a phenomenal growth of enthusiasm in anticipation of spring.

The signs of spring are evidence of the fact that its arrival cannot be far distant. An early robin, the cheery song of the cardinal, the return of the white-throated sparrow and red-winged blackbird are unerring indications of spring.

The only bleak thought is the danger of a late frost or a last

fling of winter in swirling snow. But even this disappears as the continuing parade of spring flowers assures us that the calendar cannot be turned back. Spring is here. In some circles, the skunk cabbage is a much maligned plant, but in the mind of the fisherman, it is



Skunk cabbage (*Symplocarpus foetidus*)



Bloodroot (*Sanguinaria canadensis*)

Arbutus (*Epigaea repens*)

associated with the first fishing days of a new season. Somehow or other, it is related to the Hendrickson and Quill Gordon, although it is obvious that only a fisherman could confuse flies and plants.

It is the first plant to appear in the spring, and its perennial roots soon send up the large entire leaves, preceded by a central spathe. *Symplocarpus foetidus* (L.) Nutt., or Spathy as it is called by some, is a true harbinger of the reawakening of plant life.

In spite of its fetid odor, particularly if the leaves are bruised or crushed, its early appearance in the low lying and swampy areas along trout streams rates it as number one on the list of the trout fisherman's flowers.

The spicy fragrance of the flower of trailing arbutus, *Epigaea repens* L., adds to the zest of the trout fisherman's spring. Where trout streams cut through steep mountainsides, the dry rocky places are sometimes covered with the rose-colored flowers of this prostrate member of the heath family. It is sometimes called

ground laurel, and its evergreen leaves are covered with rusty-colored hairs.

A rather brave but inconspicuous spring flower is the early saxifrage, *Saxifraga virginensis* Michx. Like arbutus, this perennial favors dry and rocky hillsides and often grows on exposed rocks.

Its rather fleshy and purplish leaves are held close to the ground, but the flowering stalk proudly raises itself up into the air as if, in part at least, to make up for its lack of natural beauty.

Certainly, the derivation of the name shadbush is no mystery to a fisherman. Unfortunately, the shad do not run in the spring in much of our State anymore, but the plant presumably was named here when the spring run was a common sight.

Botanically, the shrub is called *Amelanchier canadensis* L., but commonly and locally it may go under the names shad, shadbush, serviceberry, shadblow, or Juneberry.

The flower cluster is large and showy. Often, it is a rather drooping mass of white, having come into

flower in a miraculously short time. It abounds in dry, open fields. In various parts of the State, it shows a preference for the rather open but now dry canal banks.

Hepatica, or liverleaf, is a member of the buttercup family. The old leaves are persistent during the winter; but in the spring, after the flowers are produced, new leaves make their appearance. The leaf is heart-shaped and deeply lobed.

The single flowers of *Hepatica acutiloba* DC are borne at the ends of hairy stems and are jaunty and refreshing in appearance. Hepatica is a woods flower and often grows on banks under trees or smaller shrubs.

Sanguinaria canadensis L. is the rather formidable name of blood-root, a common spring wildflower known by nearly everyone. It flowers in April and May and is a common sight in open, rich woodlands.

The flowers are handsome and showy with their eight or more white petals.

The stems contain a red-orange



▲ Hepatica (*Hepatica acutiloba*)

◀ Shad Bush (*Amelanchier Canadensis*)



Saxifrage (*Saxifraga virginensis*)



Toothwort (*Dentaria diphylla*)



Violet (*Viola cuculiata*)



Trillium (*Trillium grandiflorum*)

acid juice, and this accounts for the common name of the plant.

Spring beauty (*Claytonia virginica* L.) is a member of the Purslane family and is found in moist, open woods. The flower, a delicate rose color with darker veins, typifies the freshness and alertness of the season itself.

The clusters of delicate flowers are borne on simple stems that develop from a deep perennial tuber.

There is little need to write about violets. There is no one who does not know of these fragrant flowers and the many and varied places in which they grow. Another and less commonly used name for the violet is heart's ease. Sometimes, I won-

der whether this name might not be more appropriate.

The mandrake or May apple (*Podophyllum peltatum* L.) is better known and more easily recognized by its large umbrella-like leaves than by its single, large white flower.

It is a plant of the open woods and might be called one of the late spring flowers. Its deep green foliage gives a soft, velvety appearance to many open wood lots and stream banks.

No account of the spring flora would be complete without, at least, a brief mention of painted trillium, *Trillium undulatum* Willd.

The wake robin, or birthroot as it is sometimes called, is an inhabitant of the cold, dark, damp woods or bogs. Sometimes, however, it may grow in relative profusion on moist hillsides.

These low herbs, with tuber-like rootstocks, produce a relatively large whitish flower painted with purple stripes. The flowers are showy with pointed and widely spread petals. This beautiful spring flower certainly compliments the lily family, to which it belongs.

When *Dicentra cucullaria* L. is described as an early spring flower with two divergent spurs, each longer than the pedicel, there is (Turn to page 28)



how to bend on Garden Hackle

By DON SHINER

WORMS . . . most popular of all baits with fishermen everywhere are prized or despised according to the viewpoint. This story, therefore, is NOT for the purist.

The same finesse of tying on a No. 18 dry fly may not be necessary in bending on a worm but the successful wormer practices his art using a variety of methods depending upon the specie of fish he seeks.

Suckers, for example, are rarely caught on a worm hooked merely through the collar. Trout, conversely, seldom prefer a big lump of worm bunched on the hook.

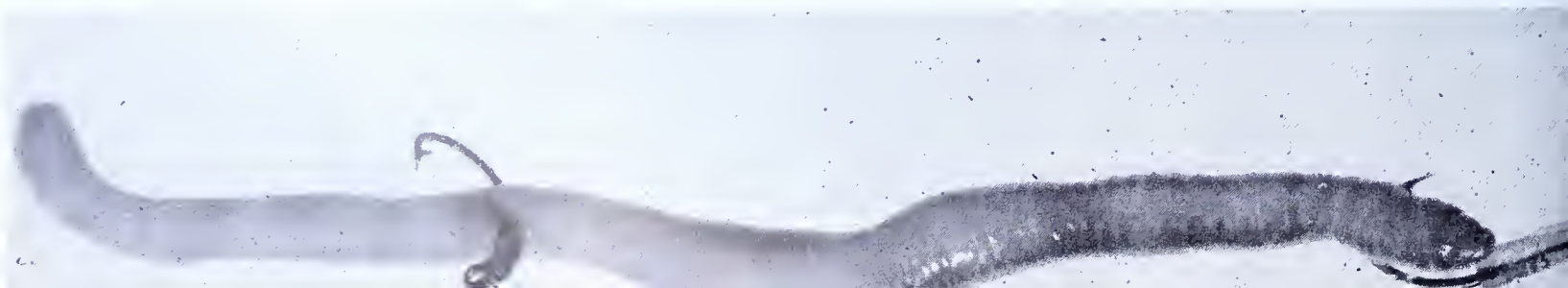
Only a few methods of bending on the lowly garden hackle are suggested here but no doubt you will have pet ways of your own for performing the job. Many combinations are possible. Methods differ with the type of fishing done . . . casting, trolling, worm and spinner or just plain still fishing.

▲ The worm, most popular of all baits. But how to place it on the hook for best results is sometimes puzzling.



▲ Here's how to hook a worm when trout fishing. Place a small hook through the collar and let the worm dangle its full length. The worm will appear more natural and will take far more trout when placed on in this manner.

▼ Many anglers use a worm-gang or gang-hook when trout fishing. That is, a series of two or three small hooks are evenly spaced along a thin leader and the worm stretched out for its full length. Some prefer to use two or three small worms and hook each one on separate hooks. Hooking and stretching the worm its full length makes it appear as though it is wiggling naturally in the water.





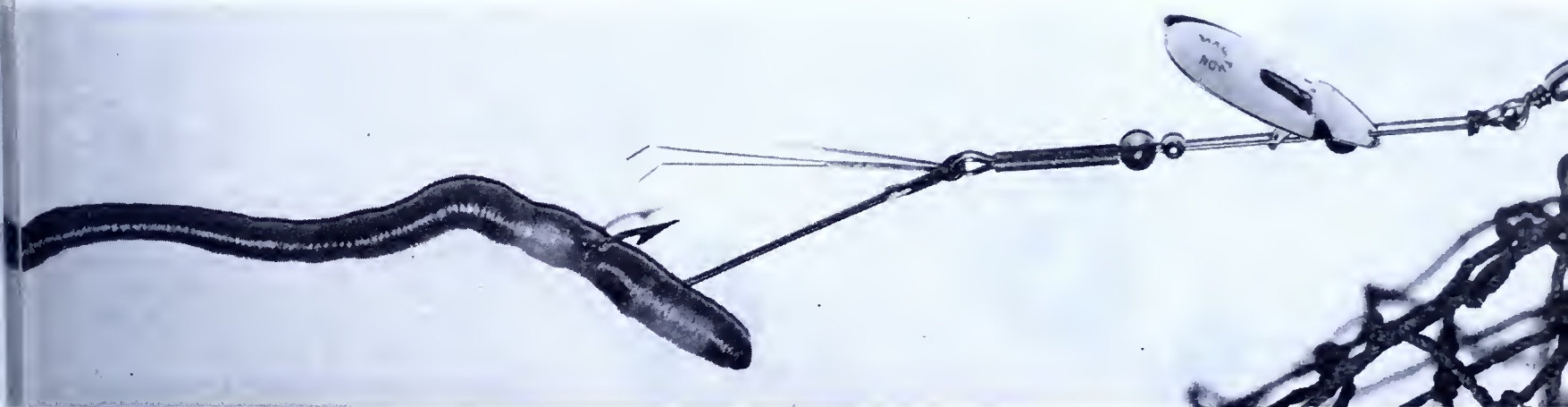
▲ Sucker fishermen generally place the hook through the worm in various places bunching it on the hook. The hook size is generally about a No. 6, a No. 7 being preferred by many.



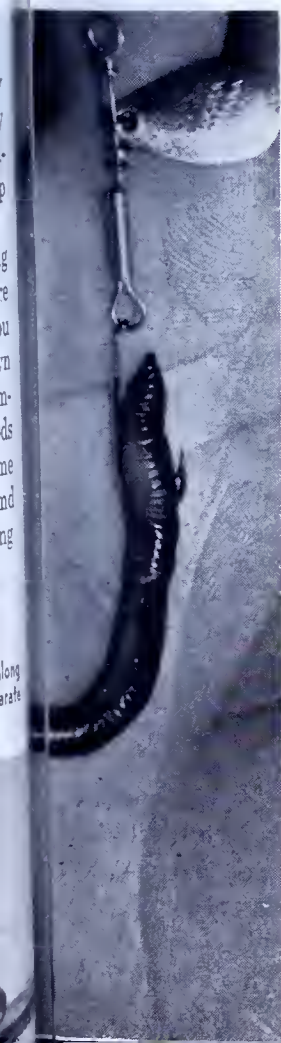
▲ This is called a 'bob' of worms, and is frequently used when fishing for catfish and eels. Worms are strung, by means of a needle and thread, on a line for several feet. The threaded worms are then doubled on a heap, forming a ball.



▲ You will find that pan fish will bite more readily if the worm is hooked through the center so that both ends are free to wiggle. Use small, lively worms.



▼ Trolling a June-bug or a Susquehanna spinner and worm is a fine method for catching walleyes. The worm should be of the night crawler variety and the hook placed through the collar or end, allowing the worm to extend its full length while trailing behind the spinner.



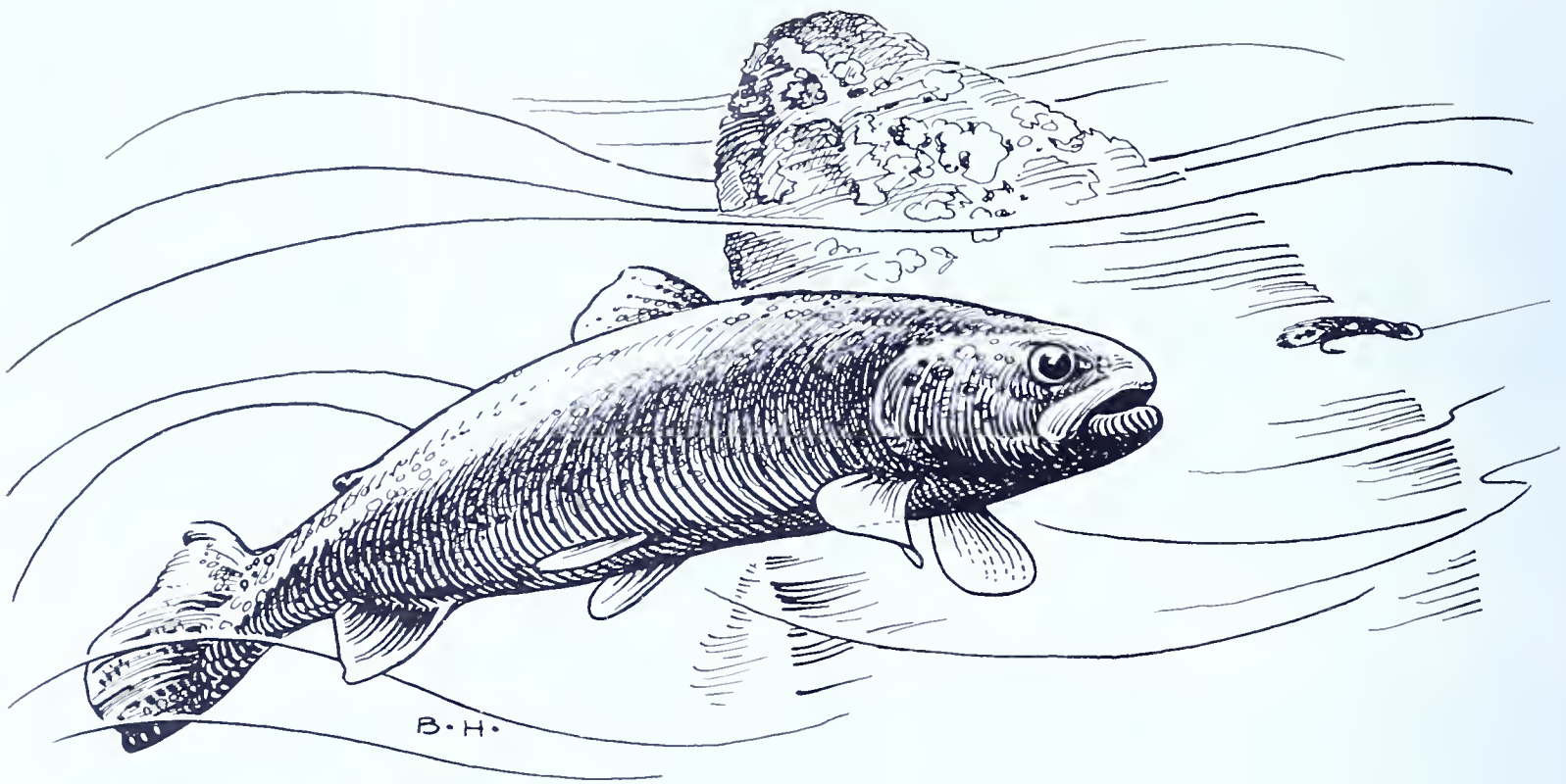
▼ Bass fishing sometimes calls for two methods of hooking worms, through the collar as in the case of trout fishing, or hooked as shown in this picture.



◀ Here's how to hook a worm to a small spinner when trout fishing. Use a short red colored worm, hooking it at the one end and allowing the worm to trail its full length behind a spinner.



➤ Oh! This worm wiggles so! Now let's see, how did he tell me to put it on the hook?



BIG ONES

By HOWARD T. WALDEN, II

Here's another interesting chapter from Mr. Walden's book, *UPSTREAM AND DOWN, a splendid addition to the angler's outdoor library.

Illustration by BOB HINES.

THERE is a moment in the career of every trout angler when he is awarded a kind of diploma. It is that moment when his first big fish comes to net. From that time on he has a changed feeling for fishing, a heightened respect for the quarry he seeks and for the stream which yielded the big one. He has, also though he doesn't admit it, an additional cubit of dignity. The challenge has been met: that ultimate encounter, to which in all the years of his fishing he has looked forward with a mixture of confidence and doubt, has been joined at last and won. This prize in his net, this speckled wonder of a size to dwarf the best previous fish of his career, is the grail of many pilgrimages, the reward of long and patient pain.

"Big fish" may seem an elastic term, but to those who have spent their casting years on the trout waters of the Northeast it is a fairly exact designation. It means a fish many times larger than the usual run—a trout of eighteen inches to five pounds or more, though the latter are the rare giants of the Northeastern streams and are seldom taken on ordinary light fly-fishing tackle. On these waters a very large percentage of

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the trout caught are of seven to twelve inches in length. There are a good many thirteen-, fourteen- and fifteen-inchers: they are distinguished enough to be much desired. But they are not big. Trout of sixteen or seventeen inches are rare, so rare in most water that the landing of one is an event worthy of photographs, postcards to friends and the ministrations of a taxidermist.

But these, too, are not *big*. The non-trout-fishing layman, seeing one of this ilk, might remark "Nice fish" and think no more of the matter during the remaining dull years of his dull, non-fishing life. In passing I might mention an idea I have always had concerning the sure way to get an accurate pronouncement upon whether or not a trout is *big*. Show him to a man who has never had a trout rod in his hand or a trout thought in his head, and record his first spontaneous ejaculation, if any. (If not any, your fish is not *big*.) Such a man is used to seeing bluefish and shad on counters in fish stores. His forebears for generations have been used to seeing bluefish and shad on counters in fish stores. It is useless to explain to him that the trout, while a highly superior game fish, very seldom attains the length of even the common run of bluefish and shad. To him a fish is something with scales and fins, about two feet long and four pounds heavy. A trout, he knows if he has thought about it at all, is a fish, hence a trout should be two feet long and four pounds heavy. All right, you show him that sixteen-inch rainbow who slammed your fanwing Royal in the dusk and carried it from the smooth lip of water at the tail of the pool to the riffle at the head so fast and so savagely that you fed him line with a prayer—who jumped two feet into the air and danced over half the pool's surface before he gave in at last and was brought, expiring, to net . . . You show him that sixteen-inch, one-and-a-quarter-pound beauty—and all the fish-store-counter shad and bluefish of his and his ancestors long mud-dling lives will come into his mind. He will grunt, "Um-m, that's a nice trout, isn't it?" and go back to his

calculations upon the probability of a bull movement in Steel.

That sixteen-incher is not *big* either, but a twenty- to twenty-four-inch trout will draw some snort of amazement even from this Philistine shopper for shad. From the gentry who fish for trout as you do—they who know the extreme rarity of anything that long with spots—your twenty- to twenty-four-incher will evoke something more profound than mere amazement. A gleam of something approaching religious wonder will kindle in the eyes of such beholders. Your two-foot trout is no mere big fish to them. It is the elusive stuff of dreams crystallized into solid matter before their eyes, it is achieved ambition, it is pure success in a form that can be touched and hefted, it is the impossible thing accomplished, it is the ultimate secret of dark water revealed, won at last from the jealous and inscrutable Stream Gods who have kept it. Those beholders who have landed a comparable fish know your ineffable experience; those who have not will imagine that experience as it never was and never can be. For it does not, after all, hold quite the content of dynamite and drama with which imagination has invested it. A one-pounder hung on a light rod, small fly and 4x leader feels heavy enough in all conscience, and leads to exaggerated ideas about the feel of the giants of three pounds and up. The ratio of violence is perhaps something less than three to one.

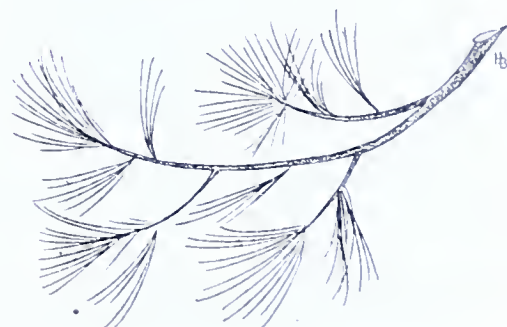
The average angler, sooner or later, will run into a big one, either by purposeful design or pure accident. If the former he is prepared with tackle that will hold the giant and is apt to be less impressed with such prowess as is displayed. But if, as rarely happens, he connects with one of these torpedo while casually throwing a No. 14 dry fly over a run of smallish water in the hope of raising a ten-incher, he will likely be shocked into an estimate which far exceeds the actual recorded data on big fish. This particular trout will, in all probability, get away before the fisherman gets a good look at him, and he will go down in history as "at least twenty inches and

three pounds." But very likely that trout was not more than sixteen inches and a pound and a half. A fish that size can feel tremendously heavy on a light rod and light tackle, and is big enough to carry away a fine leader if not adroitly handled. Fishing a short line over a small pool and expecting a little fellow, a man's emotional balance is upset by the strike of a large trout. The result is a hook pulled out of the fish's jaw or failure to turn the initial stampede in time. In the latter case something must snap, and it is usually the 3x or 4x leader.

Probably most large trout which get away are those which are surprises. Big ones hooked in small water, or in big water while angling for small fish, are charged with that shock of surprise which is inimical to skillful handling. Most of our larger Northeastern streams hold big trout but rarely yield one to a fly in the daylight hours, hence most daytime fly fishing in these waters is for the little or medium fish of a pound or less. But the surprise big one, if landed, is likely a much more worthy capture than the big one deliberately sought. He is taken on a small fly and light leader, thus he is free to do battle against the least possible handicap.

But the purposeful conspiring for big trout has at least the thrill of anticipation and, if successful, the special satisfaction of any job which is consummated according to design. It is something to be on the prowl for a three-pounder, armed against the might of the biggest fish your stream can hold. You are a specialist, then; you have renounced the considerable satisfaction of a mess of small ones for the rare chance of a whopper. The thing has the gambling appeal of any long shot. Swinging a No.

(Turn to page 28)





With ink we marked the rod where the taper should be altered and Garrison went home to try again. In all, he built a series of eight rods, each one of them a slight improvement on the last. The eighth was just about as fine as a fly rod in that size can be. While Garrison has made hundreds of rods since then, that eighth rod still is the basic design of the semi-parabolic rod action as it is turned out in the high-grade rods of today.

Not long after he had built that eight-rod series—perhaps four years—Garrison found a commercial outlet for his rods in the tackle department of Alex Taylor & Com-

Fly Rods In America

(Conclusion)

EVERETT GARRISON, strangely enough, was not a fisherman when first he decided to try his hand at making fly rods. I doubt very much that he could explain why rod making interested him. It may have been because of Dr. George Parker Holden and his intense interest in angling and rod making. Holden was an extremely positive character. He was not very tall—possibly five feet, ten—but his stocky build, brown curly hair and rather florid, freckled face fairly radiated energy. It was impossible for him to do things by half measures. Either he did them completely or not at all. As is typical of folks of this sort, his likes and dislikes were in keeping with his pattern of behavior. He liked a man wholeheartedly or he had absolutely no use for him. Evidently he liked Garrison, because he taught him the rudiments of rod making and then sent him to me with his rods, asking in his note of introduction that I sponsor Garrison at The Anglers' Club of New York.

When Garrison showed up at my office that day, we went into the "conference room," shut the door, and looked at his fly rods. Some of them were good, some

were not, but all of them showed the highest type of meticulous workmanship. By the time we had put the seven fly rods back in their cases it was lunchtime, so over to The Anglers' Club we went. While we had lunch, many of the members examined the rods which were lying, assembled, on the table of the club lounge. When we left the club at about two that afternoon, Garrison had sold four of his fly rods.

On the way back to my office Garrison asked me my honest opinion of his rods. I was quite frank with him. They were good rods, I told him, beautifully made, but the actions were not quite what they should be for rods of that price class. He wanted to know if I thought I could improve them and I said I would be glad to try. That was in 1931.

The upshot of that conversation was a long series of experiments in rod design. I showed Garrison, on paper, an idea that had been in my mind for several years. Accordingly, he went back to his shop and built a two-piece, eight-foot fly rod. Then he brought it over to my house for inspection, trial and criticism. We took it out on the lawn and strung it up with reel and line. It was terrible.

By JOHN ALDEN KNIGHT

pany on 42nd Street, New York City. Meanwhile the other rod companies had been hearing of Garrison rods. It is difficult to say just how much influence these rods had on rod design and manufacture but I noticed that the general run of trout rods—and, for that matter, salmon rods; Garrison made both—improved quite noticeably during the next few years.

In 1936 my first book, *The Modern Angler*, was published. Charles Ritz, of Paris, France, read this book and wrote to me. He had been doing some work on improved fly-rod design and he was interested in what I had to say about fly rods.

Ritz came to this country the following year and with him he brought a fly rod that illustrated the principle of rod action on which he had been working. We compared notes. Sure enough, each of us had been trying to incorporate lever action in the center section of a fly rod, using the lower rod as the main source of power.

We took this rod up to the Beaverkill one week-end and tried it out under actual angling conditions. Fortunately, Pete Stackpole,

one of *Life* magazine's staff photographers, was one of the party. He was kept busy with his camera, recording the rod's performance on film. While I was trying the rod's capabilities at various distances, he secured a remarkable picture. It showed a considerable length of line extending out from the rod tip, parallel to the water. The fly was just "turning over" at the completion of the cast when he snapped the picture. Actually the fly touched the water before either the leader or the line. Actual measurement, from my right toe to the fly was seventy-two feet—remarkable for a little rod only seven feet, nine inches long and weighing less than four ounces.

Ritz's rod, however, was an extreme affair. It delivered all of the force of the cast to the line at the instant of release. Moreover, the delivery of power was so complete that there was no "follow through" of the rod tip, which, of course, meant that the line extended itself from the rod tip almost perfectly straight, with no downward bow or dip which most rods impart to the line at the completion of a cast. My Garrison would do almost the same thing—almost but not quite.

Ritz's design, however was far too radical for the average casting hand as it allowed absolutely no latitude for errors in timing. Make one little mistake with it and you had a "bird's nest" of major proportions hanging about your ears. Obviously that was not the commercial design.

Together we took the rod up to Jim Payne's factory at Highland Mills and the three of us went out on the lawn where I showed Jim what the rod would do. Then we went to work on the modification of the taper. After several hours we left Jim with a new construction job on his hands and started home in the car. It was then that we began discussing the name for this new rod action. Ritz's rod would deliver the power of the cast and send the line forward from the rod tip in a straight line. All right, the parabolic lens of an automobile does the same thing with light rays. That was it—the "parabolic rod action."

The first "parabolic rods" were

still too radical for practical use. Again we put together the Garrison rod and studied its behavior. The more we tried it out, the more convinced we were that it was the practical rod. Thus, the Payne parabolic rod was modified to what is really a "semi-parabolic," although that term is not used in today's nomenclature.

Once the parabolic rod was an assured thing, I wrote a story about it for one of the outdoor magazines. This kicked up quite a bit of excitement, both among anglers and manufacturers, and answering my mail became somewhat of a chore. All the rod makers wanted to turn out parabolic rods but none of them had the slightest idea how to go about doing so. Believe me, I was a busy boy for a while, trying to restore order out of that chaos as best I could at long range.

While it is still a difficult thing to find a usable parabolic rod at any of the tackle shops, the influence of the parabolic principle is quite evident in the rod actions of today. More and more modern designs are away from "top-action" rods and working around to somewhat slower actions which put the entire rod to work, allowing some bending through the lower rod, clear down to the grip. These rods are infinitely more pleasant fishing rods to use than were those of twenty years ago.

Meanwhile things had been happening to rod design out on the Pacific Coast. There is a gentleman named Lew Stoner who lives in San Francisco. His name is written forever in bright red letters in the history of American rod making. At first Lew's company was a partnership, The Winther-Stoner Company. As I write this I have before me a letter from Dr. George Parker Holden, calling to my attention the interesting work these men were doing. That letter is dated May 2, 1933.

At that time The Winther-Stoner Company was turning out mostly salt-water rods, but the reputation of the company was growing. With these rods Mr.

Primo Livenais was hanging up record after record among the surf casters. Lew Stoner's rods have made and still hold all surf-casting records made since 1929.

Lew's company also turned out glued-up joints which allowed an amateur rod maker a great amount of leeway in his hobby. With Lew's sticks he could set up a rod anywhere from eight feet in two piece to nine and one-half feet in three piece. All he had to do was follow Lew's instructions and he'd find himself with a good, usable rod.

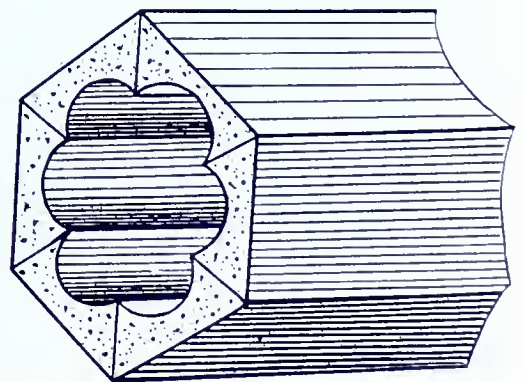
The name of this company was soon changed to the R. L. Winston Rod Company (the name being concocted by combining the names Robert Winther and Lew Stoner) and it still operates under that trade name.

In 1937 Lew announced a radical innovation in rod construction—the Fluted-Hollow Fly Rod. His rod sections, instead of being composed of solid, glued-up bamboo, are hollow, with no core but air. Each spline is fluted so that a comparatively large gluing area is made available. You will see what I mean if you glance at the illustration.

With one of the first fluted-hollow tournament rods, Marvin Hedge proceeded to add about 25 feet to the world mark of approximately 140 feet, which record had stood for the previous thirty years. That was in the National Tournament in 1937. The following year Dick Miller boosted the fly-rod record to 183 feet, 3 inches, where it still stands, again with a Winston rod. Without question, Lew Stoner's rods hold more world's records than those of any other rod maker, living or dead.

Not a great deal happened in rod design for the ten years from 1938

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► Cross Section of Lew Stoner's Fluted-hollow rod construction.

Pennsylvania's

TROUT COUNTIES



By DICK FORTNEY

THREADING their way through the rolling hills and the fertile valleys of North-Central Pennsylvania is the finest network of trout streams to be found anywhere in the United States. They are of a wide variety of size and type, and their sources are springs which bubble from the earth in flows of crystal-clear sweet water.

The area in which they are located is far removed from large centers of population, in a region where thick forests still stand and where, in many places, the inroads of modern civilization have not been felt. Some can be reached only by unimproved dirt roads.

Actually, the network of trout streams consists largely of the drainage systems of a number of large creeks and of the west branch of the Susquehanna River, which flows in a diagonal direction across the state from the western counties to Delaware Bay.

These large creeks themselves contain trout.

But the real enchantment of the trout streams of the area is to be found "back of beyond," where the water is of brook size.

The basic waterways of the system include Big Pine Creek, Little Pine Creek, Muncy Creek, Loyalsock Creek, and the Tioga River, itself not far south of the border of New York State. The principal counties within the network include Sullivan, Lycoming, Tioga, Clinton, Potter, Bradford, Union, and Montour.

Largest of them all is Loyalsock Creek, which flows southward a distance of some 65 miles and empties into the Susquehanna at Williamsport. Pine Creek, which has trout in its upper reaches, ranks second in size. Lycoming, which is classified as trout water in its northern half and which also empties into the Susquehanna, is third in size.

Brown and rainbow trout are to be found in these basic streams—as also they are in all of the smaller ones except those mountain brooks, which are exclusively the home of the brook trout.

The whole network is stocked by the Pennsylvania Fish Commission regularly, with local sportsmen's organizations co-operating in the actual work of transferring fish from hatchery trucks to the streams.

In the early history of Pennsylvania the trout streams of the north-central district were a veritable paradise.

There are records, for example, of the taking of three-pound brook trout in large numbers from the waters of Loyalsock Creek in the era when lumbering was a principal industry in the central counties. Fishing was not an easy sport in those days—for the favored upper reaches of the stream could be reached only by horseback and carriage over rough and perilous roads.

But experts at the art of spinning minnows and angling with wet flies—and leaders made of horse hair were a special refinement of the times—had their fill of thrilling sport.

Surface mining of coal, lumbering, and the growth of towns and cities inevitably occurred in this region and had their sinister influence on the trout streams. The day of the brook trout declined and, in some streams, passed entirely. Hard-surfaced roads were built, cottages appeared on the shores of the larger streams, and fishing pressure increased.

Modern stream management and conservation practices have preserved these big trout waters to the present day, however, and they still rank as outstanding in the nation as well as in the state.

Today, though, the real charm of the trout waters of North-Central

Pennsylvania is spun around the smaller trout brooks—those that find their way through the hills where civilization has not yet reached them, and probably never will.

One of them is noteworthy in particular. It is Slate Run, a tributary of Big Pine Creek. Its course lies through a narrow, winding valley amid some of the most rugged mountains in the central part of the state. Paved highways lead toward it from Williamsport through the towns of Jersey Shore and Waterville—but the last miles, along the stream itself, must be traveled over unpaved dirt roads.

Slate Run offers an almost endless variety of fishing water. Some of its riffles are shallow and placid; others swift and rugged, so that an angler must be skillful to cross in safety. Some of its pools are gentle, quiet bits of water snuggled in rocky flats. But others are deep, mysterious holes that have been chiseled out of the rocky soil by the furious hammer of high waterfalls.

Much of the way the angler is able to progress along Slate Run without too much difficulty, but there are spots where he must take to the woods and detour around steep falls on narrow forest paths.

Special fishing regulations are enforced on Slate Run.

One forbids fishing at any time in some of the tributaries of the stream, which have been stocked with fingerlings and which serve as natural trout nurseries.

Another prohibits fishing at night.

Still a third requires the angler to break the barbs off his hooks if he is fishing with live bait of any kind.

Nine inches, instead of the statewide six inches, is the legal size of catchable trout in the run, and the angler is restricted to a creel limit of six, instead of the usual eight trout.

The trout population of Slate Run has thrived under these restrictions, and it is one of the most popular streams in the mid-section of the Keystone State.

Slate Run, incidentally, is not the only stream of this type.

There are many others which wind through mountain valleys—where an angler is likely to encounter a deer or a bear drinking of the cold, clear water and where it is possible, once the season of low water has come in mid-summer, for a sportsman to spend hours at a time in his angling without encountering another human being.

Another type of trout stream that is to be found in the area is that which flows through the farm lands of the central counties.

These waters attract the early season fishermen, for when June and July come, they are warm and low, and fishing is difficult.

The larger streams, by contrast, bear the brunt of the later season angling, for their big pools provide excellent refuges for the trout and their rough riffles keep the water well aerated even when the mid-summer sun beats down hotly.

Night fishing, incidentally, is enjoyed by many anglers on these big creeks, where there is ample room for back-casts and where the big brown trout are in the habit of cruising in the pools in search of the big night-flying insects and other food.

Because the trout streams of the north-central counties are within driving distance of such communities as Williamsport, Lock Haven, Milton, Sunbury, and other fairly large centers of population, and also because many anglers from the eastern and western sections of the state—where trout streams are poor—travel into the area, stocking of trout is carried on regularly in the weeks just prior to the opening of the trout season, April 15, and again later in the season, when the vacation traffic is at its peak. Drought conditions caused the Fish Commission to discontinue fall trout stocking in 1951.

No mention of the trout waters of North-Central Pennsylvania can be complete without reference to still another type of trout stream—one which is hardly likely to attract visitors from great distances but which are dear to the hearts of natives of the area. These are the tiny mountain streams where the native brook trout is making its last stand in the area and which often are not to be found on any map.

I think of one that is a tributary of one of the larger trout brooks of the region. I'll not mention its name, for it deserves to be fished

only by those who have been fortunate enough to find it.

It lies in a sheltered valley between lofty hills, meandering through a forest so thick that the light is dim even in the middle of the day and the air fresh and cool in mid-July. Near its mouth its waters disappear into the stony bed of the stream, and one has to walk a considerable distance through a woods to get to its first visible pools. There is, therefore, no indication of the precise spot where it enters the main stream. The angler who knows it locates it by the

(Turn to page 32)



No modern, hard-surfaced roads lead to out-of-the-way creeks like this one in Central Pennsylvania. But native anglers know them well, take fine catches of trout from these waters.



The native brook trout may be comparatively small but they lack neither beauty nor scrappiness. They are still to be found in the back-of-beyond trout brooks.



was difficult to maintain a footing when the water was high, so swift was the current.

Extending two-thirds of the way across the water at the upper end of the pool was a large sapling that had fallen across the creek the previous autumn when, at flood tide, the swollen waters had undermined its roots.

There was an angler from Bloomsburg fishing minnows in the deep water in front of this fallen tree, so I made my way around him and dropped my hook along the shore where the water was leaving the pool at the lower end.

There was a bit of an eddy here and the six-inch trunk of another sapling that obviously had been washed downstream and deposited here by high waters of bygone years.

In a minute I knew I had hit

JEEPS, TRACTORS, HORSES— and trout

By WILLIAM BOYD

JEEPS, tractors, trucks and even a team of heavy farm horses made it look more like farmers' day at the county fair than opening day of trout season.

Anyone driving to this particular stream could understand why such unusual means of locomotion were used by the fishermen before he had driven very far on the rough road providing the only means of entrance to these trout waters.

Indeed it was virtually impossible for a modern automobile with its low under-clearance to negotiate the road without scraping frequently. There was the constant worry of damage to the bottom of the car, and one instinctively kept his eye on his oil gauge after smacking a rock solidly, for it was understandable how rocks could open the crank case and permit oil to escape.

It was early in the morning when I came upon the two horses tethered to trees along the stream. Each had a blanket on his back and a halter about his head.

Fishing in the pool, among others, were two lads about 12

years old. They explained to me they had ridden the horses belonging to the father of one of them and had come in over a mountain path that shortened considerably the distance they had to travel to reach the fishing place.

The stream, fed by heavy spring showers of the last week or two, was turbulent but not greatly discolored. Clearness of the high water could be explained, for the stream flows for virtually its full length of 16 miles through a narrow, unpopulated valley where there is no cultivated land which can be washed into the water by spring freshets.

Virtually all of the men and women who had ridden the tractors, jeeps, and trucks to the fishing place were baiting with worms. George, Nick, and I had redfin minnows and worms and a few favorite wet flies, but I learned early that the fish weren't taking wet flies and minnows.

I also learned that fishing in the rapids wasn't going to be productive, so I made my way to a pool where I had caught trout the season before. This pool was just below a stretch of shallows where the fall of the stream was such that it

upon a place where the trout were lying in wait for food for on my very first cast I had a resounding strike and landed a 12-inch trout. In another minute I had a second fish, almost as large as the first, which caused the man from Bloomsburg to exclaim:

"Gee, you must have hit a school of them!" And I concluded he was right for in the next half hour I had all the trout I wanted and was ready to quit.

In this period the man who was

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56 COUNTIES ATTEND BI-ANNUAL CONVENTION - - - PENNSYLVANIA FEDERATION OF SPORTSMEN'S CLUBS

Of Pennsylvania's 67 counties; a grand total of 62 registered for the February convention of the PSFC in Harrisburg, 56 were represented by an attending delegate, and five failed to submit any reports. Counties failing to register were: Adams, Huntingdon, Mifflin, Pike, and Sullivan.

Credentials committee Glenn C. Dodds and Mrs. Allen A. Dietrich announced the 62 counties which registered as: Allegheny, W. E. Guckert; Armstrong, Carl A. White; Beaver, George O. Welsh; Bedford, Byron A. Black; Berks, Oscar A. Becker; Blair, Claude E. Blair; Bradford, Louis V. Barnes.

Bucks, LeRoy Stackhouse; Butler, H. A. Patten; Carbon, Theodore Kloehler; Cambria, Dr. R. Koehler; Cameron, James J. Russell; Centre, George R. Griest; Chester, Everett G. Henderson; Clarion, C. Amsler; Clearfield, Harris G. Breth; Clinton, Howard J. Miller.

Columbia, L. C. Smith; Crawford, Tom Youngblood; Cumberland, L. A. Goodyear; Dauphin, Turk Cummings; Delaware, Ralph Millard; Elk, T. V. Hayes; Erie, Leonard Niederriter; Fayette, Leslie W. Secoy; Forest, Don Payne; Franklin, Paul Z. Hopkins.

Fulton, Lyle Putt; Greene, Edward Van Cleve; Indiana, J. O. Peters; Jefferson, Joseph S. Pisoni; Juniata, E. B. Fletcher; Lackawanna, Frank Galonis; Lancaster, John A. Helter; Lawrence, George F. Bolinger; Lebanon, Jake Sherk; Lehigh, James S. Biery.

Luzerne, Steve Emanuel; Lycoming, James F. Sheffer; McKean, Livio Colosimi; Mercer, C. Paul Blair; Montgomery, Ellen A. Dietrich; Monroe, W. F. Goddard; Montour, Doyle D. Hathaway; Northampton, Wm. Oldham; Northumberland, Russel Zerbe; Perry, Harlow Thompson.

Philadelphia, Milton MacBain; Potter, Ray Goodrich; Schuylkill, Blair Egge; Snyder, Simon B.

Rhoads; Somerset, E. M. Glancy; Susquehanna, Glen Brundage; Tioga, Louis Stevenson; Union, Mrs. Mary L. Cook; Venango, Dr. Robert S. Dow.

Washington, Warren M. Columbia; Westmoreland, Wm. L. Achtezehn; Warren, Donald Curtis; Wayne, N. C. Farnum; Wyoming, H. B. Stanton; and York, Ralph McGuigan.

The six counties registered, but who did not check in for attendance were: Indiana, Lebanon, Montour, Northumberland, and Snyder.

RESOLUTIONS APPROVED

FISH

7. NW: Whereas; the crawfish or crab supply in many of our streams is becoming nearly depleted due largely to the destructive method of seining them, and,

Whereas, this method is furthermore destructive to other forms of aquatic and plant life in streams, and,

Whereas, a less destructive method of procuring fish-bait should be encouraged, Now Therefore

Be It Resolved, that hand-picking of all species of fish-bait be permitted in all inland waters of the Commonwealth of Pennsylvania.

8. SC: Whereas, the Fisherman's Paradise on Spring Creek was originated as an educational project for the purpose of instructing novices in the sport of fishing;

Now Therefore Be It Resolved, that a portion of the Fisherman's Paradise be set aside as an instructional area, where fishermen may instruct and actively assist beginners in the handling of tackle and fish, provided nevertheless that no fish taken from this area be killed.

GENERAL

17. Directors: Whereas, a dam on the Game Lands in Dyberry Township, Wayne County, which formed a lake known as, 'Lower Woods Pond' has failed and should be restored.

Resolved, that the Fish Commission be requested to cooperate with the Game Commission with the view to restore said dam.

Further Resolved, that the dam and pond when restored be named in honor of the late Dr. C. A. Mortimer, the first Secretary and one of the Founders of this Federation, 'The Dr. C. A. Mortimer Memorial Lake.'

WARREN COUNTY WINS CONSERVATION TROPHY

Judges Unanimously Cite
Northwest Unit "County of the
Year 1951"

(See story on page 32)

Warren County, carrying the full votes of the three judges, was named the, 'County Of The Year,' during the recent convention of the PFSC held in the Education Forum, Harrisburg. President S. Dale Furst had the honor of making the presentation and Don Curtis, delegate from Warren County, was on the receiving end.

Five counties entered in the 1951 contest were: Cameron, Fayette, Lehigh, Montgomery, and Warren. Judges included: Charles K. Fox of Harrisburg, vice-president of the Pennsylvania Outdoor Writers association; Johnny Mock, editor of *All Outdoors* for the Pittsburgh Press; and Dr. Francis J. Trembley, head of the biology department of Lehigh University, Bethlehem.

The \$100 in merchandise as extended to the Warren County group included: 1. Two of the new KILIAN level winding reels; 2. Three WEBER futurist trout reels; 3. Two large boxes of QUILBY assorted spinning rod lures; 5. One GUDEBROD Fly Queen line; 6. One GUDEBROD Fly King line; 7. Two spools of CORTLAND bait casting line; 8. Two spools of GUDEBROD bait casting line; 9. Two large FLOZ-ON rods; and 10. Three small FLOZ-ON rods.

The sealed letters with the judges verdict were opened in the presence of the convention by Executive Director, Fish Commission Charles A. French, Game Commissioner John C. Herman; and Sanitary Water Board Member Frank M. Geer. Paul Harrison of Sheffield is president of the Warren County sportsmen and L. N. Donaldson, 312 Jackson Ave., Warren, secretary. Curtis of Cobham Park Road, Warren, is official Delegate.

EXCERPTS FROM THE MINUTES OF MEETING OF PENNSYLVANIA FISH COMMISSION HELD JANUARY 28, 1952

Warden For Lancaster County

Robert J. Bielo, 19 Penn Avenue, Greenville, Pa., regular warden for Mercer County, was transferred to Lancaster County to fill the vacancy caused by the resignation of Robert M. Greener. Also, John R. Abplanalp, Box 597, Mt. Jewett, Pa., was appointed as the warden for Mercer County to fill the vacancy caused by the transfer of Mr. Bielo.

Rules and Regulations—Presque Isle Bay, Lagoons, and Ponds

The following rules and regulations will be in effect covering the taking of bait-fish from Presque Isle Bay, Lagoons and Ponds for 1952:

1. There shall be no seining from the shores of Presque Isle Bay or the shores of the lagoons and ponds—Permit to be issued for the use of seines not over twelve (12) feet in length for the taking of minnows from docks or boats.
2. There shall be no fishing permitted behind any of the restricted areas starting at the west boundary of the Erie Yacht Club around the entire shore line of Presque Isle Bay to the Perry Monument or any other posted area before June 15.
3. That the Pennsylvania Fish Commission continue its biological survey of the Bay, Lagoons and Ponds to determine seasons for game fish and pan fish in these waters.

Rules and Regulations Governing Bait-Fish—1952

The Pennsylvania Fish Commission has set up the following rules and regulations on bait-fish and fish-bait:

LAMPREY EELS CANNOT BE USED FOR BAIT IN ANY OF OUR INLAND WATERS.

Every minnow box anchored in a stream, pond, lake or place of residence must have attached thereto the owner's name and address and fishing license number.

If maintained by more than one person, it must be in sections and each section must have owner's name and address and license number.

Pennsylvania fishermen are also permitted to take bait on a fishing trip either within or without the State provided the possession limit is not exceeded and the bait are for his own use. If there is more than one fisherman, bait must be in separate containers or a divided minnow box or bucket.

Special Notice—Bait Imported into Pennsylvania

No person or persons are permitted to bring bait-fish or fish-bait into Pennsylvania for resale without first securing a permit issued by the Pennsylvania Fish Commission, Harrisburg, Pennsylvania. In making a request for a permit, all persons must supply the Commission with name and address of the person or dealer from whom bait-fish or fish-bait are to be purchased, species of bait they desire to transport, number, place or business where fish will be resold, etc. Dealers must keep a record of all fish-bait or bait-fish purchased under their permit and copies of bill of sale to individual fishermen which must check with purchases made.

PENALTY FOR VIOLATION OF ABOVE—TWENTY DOLLARS, as provided for under Section 251 of the Act of May 2, 1925, P. L. 448, as amended.

Bait-fish or fish-bait taken from our inland waters CANNOT BE SOLD within the Commonwealth or transported outside the confines of the Commonwealth for sale. This ruling does not prevent a fisherman from taking his own bait from public waters, but under the law he cannot have more than thirty-five (35) bait-fish or thirty-five (35) fish-bait, or fifty (50) of the combined species unless purchased from a Commercial dealer who operates under a license issued by the Commission, or from

a dealer who has purchased them from a Commercial Hatchery. Penalty for violations in accordance with the provisions of the Fish Laws.

CHUBS UNDER SIX (6) INCHES CAN BE USED AS BAIT-FISH UNDER NEW AMENDMENT TO THE FISH LAWS. Penalty for violation in accordance with the provisions of the Fish Laws.

No fishing is permitted in any waters from midnight March 14 to 5:00 A. M., April 15. This amendment prohibits taking bait-fish or fish-bait may be taken on Sunday in rivers, lakes, and ponds not stocked with trout. Penalty for violation in accordance with the provisions of the Fish Laws.

Sunday Fishing for Fish-Bait or Bait-Fish

Under an amendment to the Sunday Fishing-Law, bait-fish or fish-bait may be taken on Sunday with the same devices used on week-days, i. e. two rods and two lines with not more than three (3) hooks attached to each line; a dip net or minnow seine not over four (4) feet square or four (4) feet in diameter; a minnow trap with not more than two (2) openings which shall not exceed one (1) inch in diameter. The rods, hooks, and lines must be under the immediate control of the persons using the same. Penalty for violation in accordance with the provisions of the Fish Laws.

Benner Spring Research Project

It was agreed that Mr. O'Hara, the Commission's engineer, proceed immediately with the work on the Benner Spring Project which will give the Commission a complete operating unit for biological work.

The estimated cost of the first unit is \$171,540.00. Considerable difficulty has been encountered in securing steel for the work, but it is hoped that some plan can be submitted which will be acceptable to those granting authorization for use of steel on worthwhile projects.

Nursery Waters

The following areas were set up as nursery waters for a period of one year:

CAMBRIA COUNTY—Rearing

pond of the Cresson Community Sportsmen's Association — located on north branch of the Conemaugh River.

BERKS COUNTY — Request of Lebanon Valley Sportsmen's Association—300 yards of the Wernersville State Hospital Stream, tributary to Spring Creek, flowing through the property of the Association.

WARREN COUNTY — Request of Warren County Council of Sportsmen—Spring Creek, flowing through Clough property.

Silver Lake—Bucks County

The Bristol Chamber of Commerce was given authority to improve the shore line of Silver Lake. It was agreed by parties concerned that no concession or other commercial enterprise will be permitted. The work to be done is just to improve the shore line and make it more presentable to those who use the area for recreation.

LEGISLATION BY THE 1951 SESSION OF INTEREST TO THE ANGLERS

The following acts were passed by the 1951 Legislature:

Act No. 68 authorizes and directs the Pennsylvania Fish Commission to make a study of the migratory habits of fish, particularly shad, including the stocking and tagging of shad below and above the Safe Harbor Dam, the Holtwood Dam, and the Conowingo Dam.

Act No. 105 extends the provisions of the Workmen's Compensation Act to persons who extinguish forest fires and defines compensation in the case of self employers.

Act No. 154 amends former sections of present laws by further regulating fishing devices for game fish in the Delaware River between Pennsylvania and New Jersey by permitting plug bait with three burr hooks—this only applies to the Pennsylvania side.

Act No. 253 places a penalty of \$5 and costs on fishermen fishing during the closed season between

Pennsylvania Fish Law Violations

CASES SETTLED DURING THE MONTH OF JANUARY 1952

ALLEGHENY COUNTY

Chreffe, Joseph, 403 Lincoln Ave., Pittsburgh, Pa. Operating a motor-boat without a license \$ 5.00
Kurtz, Wm., R. D. No. 4, Pittsburgh, Pa. Lending a fishing license 25.00

BEAVER COUNTY

Irwin, Paul, R. D. No. 3, Beaver Falls, Pa. Failure to display license plates 5.00

CAMBRIA COUNTY

Appelman, Sheldon H., Mountain House Grounds, Cresson, Pa. Illegal device 20.00

CAMERON COUNTY

Akins, Albert, South Mountain, Emporium, Pa. Fishing in stocked stream during closed period 25.00
House, Percy L., 310 Greenwood St., Emporium, Pa. Fishing in stocked stream during closed period 25.00

CLINTON COUNTY

Rager, Oscar D., Clintondale, Pa. Preventing migration of fish 100.00

ERIE COUNTY

Fromknecht, Helan, 1306 State St., Erie, Pa. Fishing without a license 25.00

LUZERNE COUNTY

Andrijko, John A., 58 Lynnwood Ave., Wilkes-Barre, Pa. One undersized pickerel 10.00
Blaskowski, Norbert, 234 Market St., Nanticoke, Pa. Illegal device 20.00
Markowski, Lenord, 10 Division St., Nanticoke, Pa. Exceeding creel limit 50.00
Markowski, Michael, 147 Loomis St., Nanticoke, Pa. Exceeding creel limit 50.00

NORTHAMPTON COUNTY

Ruth, John, R. D. No. 1, Easton, Pa. Illegal device 20.00

UNION COUNTY

Zimmerman, James F., 228 Maple St., Mifflinburg, Pa. Fishing without a license 25.00

OUT OF STATE

Trout, Edward, 98 N. Fourth St., Martins Ferry, Ohio. Fishing without a license 25.00

March 14th and April 15th. A fine of \$20 and costs for a second or subsequent offense is established by this act.

Act No. 308 reclassifies chubs measuring less than six inches in length as bait fish, and those measuring six inches and over in length as game fish.

Act No. 23 increases the size of legal pickerel from 12 inches to 15 inches.

Act No. 33 authorizes and directs the Pennsylvania Fish Commission to take advantage of the provisions of the Dingell-Johnson Act, and the establishment of co-operative fish restoration projects.

Act No. 90 empowers the Dept. of Revenue to name at least one agent in each county to issue motor boat licenses.

Act No. 66 provides for the issuing of a fishing license to a Canadian subject or citizen and the fee to be the same as a Pennsylvanian would pay for the privilege of fishing in Canada.

Commission Handles 431 Water Area Investigations in 1951

The Pennsylvania Fish Commission has released a summary of

water areas investigated by biologists and technicians during the calendar year of 1951.

A compilation of the figures shows 431 investigations were made on rivers, streams, lakes, and ponds. Of the water areas covered, some were of a thorough biological nature and others were routine checks in problem areas. In addition, 53 commercial hatcheries were inspected for compliance with the law.

The Fish Commission realizes that such investigations are vital to a general management program for the waters of any area. In addition to setting up stocking policies, this work also consisted of such factors as the mileage and acreage open to public fishing, investigations of sources of fish killings and examination of water areas for possible purchase by the Commission.

The results of these investigations help promote more efficient operations and give more detailed knowledge for the solutions of existing and future problems of the Fish Commission.

8

1952 DAILY
CREEL LIMIT
TROUT

8

SIGNS OF SPRING

(Continued from page 15)

little left to the botanical imagination.

When Dutchman's-breeches is described as producing whitish flowers tipped with cream, in perfect imitation of the balloon-like breeches of a little Dutch boy, a vivid picture of this well-known flower flashes across one's mind.

The flowers are borne in clusters of from four to ten; and as they nod among the finely cut leaves of the plant, an illusion of friendly motion is created.

The full realization of spring is achieved in May and early June when *Cornus florida* L., the flowering dogwood, blooms in all its splendor.

The white or pinkish bracts of the flower are showy, while the little, centrally located flowers are often greenish and relatively inconspicuous. As a matter of fact, only a few of the many, who desecrate the woods in collecting this vividly flowering plant, actually ever notice the true flowers.

The dogwood tree grows in dry woods, often on steep mountainsides. It is a member of the heath family and reputedly was named *Cornus* from cornu, a horn, because of the extreme hardness of its wood.

Another flower of the rich woods and thickets is the toothwort, *Dentaria diphylla* Michx. It is a perennial and prefers a rather damp place with considerable shade.

Dentaria is a member of the mustard family and has been called pepper-root, presumably because of its pungent mustard-like taste. The flowers, borne in rather large clusters, are white or purplish-white. What they lack in individual showiness, they make up for in their large numbers.

I can remember the first time that I saw wild ginger. It was growing in great profusion on a gently sloping bank along the Swatara Creek in Lebanon County. I no longer remember the exact

spot. But as I scratched away the fallen leaves of the fall before, I discovered the small, single, bell-shaped flowers close to the ground. The flowers are not showy and can easily go unnoticed.

The bell-shaped flower is a brownish-purple inside, and it is almost always hidden by the rather large kidney-shaped leaves of the plant or by an accumulation of ground litter.

Wild ginger, *Asarum canadense* L., is a member of the birthwort family, and its aromatic and pungent root stalks are gingery.

I hardly know why, but its discovery in the spring has always thrilled me. I am certain that it cannot be the plant's beauty or showiness. I rather suspect that it is related to the detective work that has gone into ferreting out the secret of the plant's well-concealed flowers.

To some, the few flowers that have been mentioned will suit their concept of the signs of spring. To others, of course, a totally new array of spring flowers would apply.

BIG ONES

(Continued from page 19)

A wet fly or a big streamer (or a mouse) into the shallows, just before or just after dark, is an undeniable adventure. The mere fact that you are rigged for big game whets the prospect, nourishes your confidence of success. It is a grand way to end a day of finicky and nicely calculated manoeuvres with No. 14 dry flies. It caps a day of precision with an hour of gusto, and sends you home with your balance restored.

And maybe you will go home with something more tangible than a restored balance. There is a fair possibility of success now in this hour of dusk, in the long pebbly shallows. Look and listen and likely you will see and hear a big brown move into the shoals from his day-long hideout. In the June twilights I have seen fish of twenty inches and upward chasing chub within eight feet of my waders, a great surge like a bow wave marking the course of the monster . . . Cast your streamer (a big

one is better than a little one) across stream, let it go down with the current and retrieve it slowly, with a series of jerks which are not too jerky. Jiggle it, rather, as it comes back to you upstream, and let it rest and sink a little now and again. In the darkening water it is a fine counterfeit of a live minnow, lost from his school in the enemy country, and disabled or tired. Wade slowly and quietly down and let the current have your streamer again and again. Keep the contingency of a strike in the forefront of your mind but don't concentrate too closely upon it. There are other things: the night sounds along shore, the caress of the night peace along the flanks of the country, the sudden coinage of fireflies in the dark air. Without forgetting your essential purpose, let these pleasant concerns command you a little.

For the strike of a big brown in the dusk or the dark is not explosive at all; it will not wrench

you too violently out of any reverie. It will grow on you, almost; you will realize, without a start, that something besides the current has engaged your streamer. If you have never experienced it before it may evoke from the mists of your boyhood the feel of a big sucker taking in your worm. That is not a very thrilling prospect, perhaps. But wait—wait until you hit back. And you'd better hit hard, to set that big hook firmly in a tough jaw.

Now it starts. Now that reverie—whatever it was—has definitely left you and you are caught up full in the ecstasy of high strife. There is a moment now when your reel gives out a sound you have never heard it make. Yard after yard of precious line is leaving your guides, entering the water in this mad charge upstream or down.

Let it go—for an instant.

Then check, not abruptly, but slowly, feeling his weight. You know how much line you have (including your backing line, if any); you know the approximate

length of your cast when the strike occurred. The difference is your margin of safety—or part of it. The rest is hidden in the bed of the stream: rocks and roots and snags, and if he gets in any of these he will be lost to you.

Then keep him away. Keep him in open water if you can and say a prayer for your tackle as you prepare to turn him. For you've got to turn him now. You can't let him get snagged and you can't let him reach the end of your line at full speed.

All right, apply the pressure. Slowly—something less than the breaking point will usually turn any but the largest fish.

Does he come around? If he does, more than half the battle is already yours. That precise point in the struggle with a big one holds, I think, the essence of victory more truly even than the final moment which sees your quarry secure at last in the net. You are calm at the end. You have known for some minutes that, barring an unlucky break, you will land your fish. But in this central heat of the strife it is all uncertainty; it is your power against the trout's, with no assurance, yet, that yours will prevail. And then, at the point of greatest strain, it does. That is the moment which holds the sense of triumph, the feeling of command, the confidence that you and your gear are up to the emergency.

But it is not over, yet. The rest is more or less routine but still charged with many dangers, the greatest of which is slack line. As he comes back to you, strip in for all you're worth, and as he goes away again get your reel into play. Feed him line slowly with your left hand (which must grasp the rod, too) and, with your right, reel in any surplus line which may be slack between the reel and first guide. This is highly important: a mess of loose line right there has lost many a big one. In the excitement of battle you can step on it, trip on it, foul it on a snag. Get that line stowed where it belongs. And from now on play him from the reel if you can. It is easy as he goes away, but as he comes toward you you'll have to reel fast, unless you have an automatic, for the single action trout spool is a

slow retriever. It is, in fact, too slow for a fast incoming rush, and in this event you'll have to strip again.

Wear him down. Relentless but gentle pressure does it. If he is truly big it may take a long while—twenty minutes or more. Be sure he is thoroughly tired before you yield to that growing temptation to finger the net. He will not get away now: if you've played him twenty minutes you may be sure he is well hooked. Give him five minutes more to make certain, then draw him in easily—head over the net. Carefully, now—watch for that great final surge which has lost many another big one right here—then scoop . . .

If it is your first you may be excused anything at this moment: a blood curdling yell into the quiet night, an oath, a dance all by yourself on the bank. But if it is your tenth or twentieth your prospects of salvation may be much improved if with wetted hands you remove the streamer from his mouth and turn him gently back to his element.

Returning a good fish to the water will fill you with a sweet and secret pride and leave no residuum of regret. There is an awareness of material loss, perhaps, as there may be in the donation of a handsome gift to charity, but the spiritual gain outweighs it.

It is only when you lose a big one midway in the battle that the shock of loss seems insupportable. The ensuing emotion is comparable to nothing else in the whole psychological experience of humans. There is a more profound and more lasting sense of loss, but there is none more momentarily acute than that which seizes you when a big one gets away. For an interval which is not measurable in time your whole being has been dedicated to that heavy throbbing resistance on the end of your line. That pull of the fish against your wrist and against all your hopes and prayers is perhaps the perfect emotional satisfaction, the ultimate if evanescent Nirvana, the complete if momentary solvent of all the mundane cares which can beset a man. Its natural consummation, the capture, is the good aftermath of ecstasy; but the

thwarting of that end is frustration in its most real and bitter form. He is a philosopher and a sportsman, indeed, who can smile as his pressure is suddenly unrequited, that tautness suddenly slack.

Probably every trout stream of fair size holds a few giant and well-nigh uncatchable fish about whose shadowy presences the legends have clustered. Never a season goes by without their being seen and heard, hooked and lost, and occasionally caught. While it is true that the imaginations of fishermen, which can be really happy only with something definitely outsize, do much to keep alive the myths, there is also a deal of sound evidence in support of the existence of these monsters.

It is my custom to fish, two or three times each season, a stream which for several years has had the reputation of harboring a good many trout whose size and intelligence are alike remarkable. This stream is moderately stocked, in the early season, with fish of ordinary stature, seven to twelve inches. Good creels are customary through April and the first half of May; after that they are scarce until, by the last week of June, not only are good creels impossible to achieve but completely empty creels are the lot of most anglers casting over that water. The natural conclusion of those not familiar with this stream's reputation is that it is "fished out" of its early-season stockees. That, of course, is a fair percentage of the truth,



maybe twenty-five per cent, according to the old guard who have knowledge of that stream's legendary colossi. The other seventy-five per cent of the matter is that the big fish inhabiting that water have accounted for far more of the early-season stockees than have all the April and May anglers combined. This theory is not without its factual, as well as its imaginative appeal. It could well be the case, as any close observer of that water in late June or early July would agree.

By then all evidence of small and medium trout has completely disappeared; the fine early summer evenings wear on with almost no sign of a rising fish though the over-stream air may be active with insects. I say "almost no sign" because there is, occasionally, a rise that will give you gooseflesh on the warmest evening. If one such occurs behind you, and you merely hear it without seeing, you will decide that a large muskrat has jumped off the bank. You look around and see the subsidence of the mighty splash and the receding wave rings spreading away, as if a ten-pound stone had been dropped in at that point. That, however, was a trout, believe it or not. Look sharp and in the course of this same evening you will see one of these fellows come up. You will see his twenty-four-inch flanks roll on the surface or perhaps break

completely clear, and his big fan of a tail follow the flanks down. Of course you will cast over him, and maybe—if you are lucky at hundred-to-one shots—you will draw a rise. Those are about the prevailing odds.

Those big trout are consistently and studiously sought but very few are ever taken. They constitute a kind of perennial population of that water, as against the unfortunate transients which are introduced every April, and they have grown incredibly wise in the ways of men. On a day last summer one rose repeatedly—over a stretch of three hot bright hours—in the largest pool of the stream, a spread of water two hundred feet long and a hundred and twenty feet wide. Four anglers beside myself attended this matinee and a couple of them angled diligently for the star. He paid not the slightest attention to any item in the most varied assortment of flies and baits I have ever seen heaved at a single fish. But he continued to take his encores—rising to nothing that was visible on the surface—sometimes in mid-pool, sometimes inshore (where we could marvel at his great spotted proportions), often within a foot or two of a nicely floating dry fly or other lure. We decided at length that he was not feeding but thumbing his nose at us, devoting the calm afternoon to the indulgence of his sardonic

sense of humor . . . He was stalked again that evening, and far into the night, by three or four rods with another great miscellany of baits attached. "He *must* feed sometime," you would hear, with more hope than confidence in the speaker's tones—"a body that big needs a lot of food to sustain it." But that fish had his private and secure dining habits and they were not concerned with anything impaled upon, or decorating a hook. He was not taken that night. I have no record of his subsequent history, but I'll wager it has come to no tragic climax at the hands of any fisherman. I am quite sure he is there, still, chuckling to himself.

I hope he is, at any rate. I should like sometime to take him, but that is not why I hope he is still alive. The existence of such omniscient giants as he, sentient in the deeps of a great pool, gives glamour to a stream and to all the fishing upon it. His capture at last would slay that inscrutable and dark spirit. Brought to land and killed and folded into your creel or mine and carried home, he would be no more than five pounds of trout meat. I hope that when he dies he will die the natural death of such trout as can evade all their predatory and violent enemies, and that his body will float to sea in the closed season, unseen by any man.

FLY RODS IN AMERICA (Continued from page 21)

to 1948. To be sure, better, far better, fly rods were on the market than the old extreme models of the 1929 era but the change for the better was a gradual process. Then in 1947 an event took place down in the Florida Keys which already is making itself felt in rod design. As I stated earlier, the bass fishermen of the nation have not been getting the break that they deserve. Now it looks as though the silver lining of their particular cloud were at last in sight.

In 1947, through the efforts of Allen Corson, outdoor editor of the *Miami Herald*, Joe Brooks, then of Baltimore, Maryland, and Capt. Jimmy Albright of Islamor-

ada, down in the Florida Keys, went out one day to find out whether or not bonefish could be taken consistently on fly-rod tackle. These fish had been caught on flies prior to that date, but only a few of them. The method was not thought to be practical by the Key guides and little or nothing had been done about it.

Joe and Jimmy had good luck that day. Using plain white bucktails, Joe hooked several of these fish and landed, I believe, two of them. They returned to the dock that evening jubilant over their findings. For two years Joe worked and studied the habits and preferences of the game fish of the sand

flats of South Florida. New flies and new techniques were developed. Naturally, this research led to the development of fly rods that would lend themselves to this style of fishing.

The manufacturing companies, seeing a new and productive field in the offing, began to turn out "salt-water" models. They did this pretty much along the same lines that they followed in making the "bass-action" models of thirty years earlier. In 1949 I took three of these heavy, nine-foot affairs to the Keys with me and found them to be completely useless. Conversely, my old bass-bug rods were exactly what was needed.

Now it so happened that I taught Joe Brooks to cast in the summer of 1937, up on the headwaters of

the Delaware River. Joe is a big fellow; strong, well-coordinated and quick to learn. He had brought a bass-action rod with him, nine feet long, heavy and too fast. It did not take him long to see the advantages of the longer, slower rods. These were what he used in his early bonefish experiments.

At first a tremendous controversy raged in and about Miami between the light-tackle fans (who insisted that 8½ feet, 5 ounces, was all the rod a man needed for Key fishing) and the group who favored the long rod as advocated by Brooks and yours truly. Gradually the long-rod school grew until now the accepted bonefish rod is 9½ or 10 feet long, weighing 6½ ounces or thereabouts. These are being turned out by four or

five rod companies and they serve just as well for bass bug as they do for bonefish. At last the bass-bug fan can find a good fly rod if he wants to take the trouble to look around a bit.

During all these years several of the rod companies had been turning out fly rods made of substitute materials—steel first and later glass fibres. Please do not misunderstand me when I say that these rods are not quite in the same class with those built of good old reliable Tonkin cane. Many of the steel rods and glass rods are good, useful tools which will stand up under conditions where, perhaps, bamboo will not. The fact remains, however, that the really fine rods are and always have been made of bamboo. Thus, in discuss-

ing the development of American fly rods down through the years, we have dealt only with those built of bamboo.

I doubt very much that the average angler, when he plunks down hard cash for a fly rod, has any idea how much time, thought and effort has gone into the development of that rod. We are indeed fortunate that American ingenuity happens to be what it is, so that now a man can go to a tackle shop with the reasonable assurance that when he buys a fly rod he is receiving full value for every dollar he spends. Moreover, because of this same ingenuity, he has learned that a good fly rod adds a great deal to the pleasure found in a day's fishing.

JEEPS, TRACTORS, HORSES AND TROUT (Continued from page 24)

fishing above me, a friendly fellow with whom I kept up a running flow of conversation, caught two nice trout on his redfins. As I moved out I advised him to take the place where I had been fishing, for there could be no doubt the trout were lying just where I had chosen to fish.

As I made my way upstream toward the place where we had parked our car I inquired of fishermen whom I passed how they were faring. This I make a practice of doing for the double purpose of creating a friendly atmosphere along the stream and to learn how, where, and with what the successful anglers are fishing.

To my surprise, very few of them had more than one or two trout. My catch had come so quickly and so easily I had concluded that catches here would be numerous and large. But such was not the case.

It was still very early in the morning when I reached our car and discovered that Nick and George had not yet returned to it. While I awaited their return I cleaned my catch and had just finished this chore when the man from Bloomsburg passed by. He stopped to tell me that he, too, had caught nice trout in the productive eddy I had discovered.

He laughed at my discomfort

when I hold him my hands were so cold after cleaning my catch that I had scarcely any feeling in them. Indeed, those trout were as though they had just come from refrigeration, so cold and firm were they.

I thrust my cold hands into my pockets and walked briskly up and down the road near the car until I was comfortably warm again. At this time George put in an appearance and wanted to know if I had quit fishing.

"I've all the trout I want," I replied to his query, and he looked at me quizzically.

"I'll bet!" he replied in a highly skeptical voice. "Just how many do you have?" he asked.

When I showed him my catch, all neatly cleaned and laid side by side in the cellophane bag in which I carry my fish, he could scarcely believe his eyes, for it is seldom we fish together that he doesn't have more and nicer trout than I have.

"How'd you do it?" he inquired rather enviously, and then I knew he wasn't kidding me and that he hadn't made out. In fact, he had but two trout and neither was of any size to boast about.

And then he told me he had made the mistake of covering too much water in his fishing and had traveled a good two miles down

stream, fishing rapidly as he went. He hadn't paused, as I had done, thoroughly to fish a likely-looking pool.

A quarter of an hour later Nick appeared to report that, like George, his early morning fishing had been anything but satisfactory. He had only one trout, a ten-inch brookie, and, being a confirmed dry fly fisherman, bemoaning the fact it was too early in the season to use his favorite lure.

"I'm through. Let's get out of here," George suggested.

"That's OK with me," put in Nick. "I'm convinced I can't do anything with the trout today, so I may just as well go home and catch up on the sleep I lost this morning."



THE WARREN "COUNTY OF THE YEAR" STORY

—FROM THE FISHERMAN'S ANGLE—

"The type of work done by the Warren County sportsmen seems to me to be much more permanent and in line with up to date conservation practice i. e., improve the cover and improve lakes and streams and in general let the fish and game take care of itself. Being a fish man the fact that the Warren County men cooperated with the Fish Commission and with municipal authorities in establishing two lakes is very impressive."

Dr. Francis J. Trembley—professor of Ecology, Lehigh University, Bethlehem, Pa., serving as one of 3 judges in the selection.

A few years ago, when the Pennsylvania Legislature appropriated \$16,000,000 for the construction of ponds, lakes, and dams for recreational purposes (together with flood control), Warren sportsmen, sparked by the largest County club, were quick to press for a project in Warren County. Due to an effort which they had made some years previous, they held title to all but 3.19 acres of land on an ideal site for a dam on the Tionesta watershed and were prepared to buy that small acreage and turn all necessary lands over to the Commonwealth without charge. Without going into the details of the effort, let it be sufficient to state that Warren County was successful in getting Chapman Dam, a 72 acre lake of absolutely clean water for the County. This project has now grown into Chapman State Park and, when the facilities have been expanded, there is no question but what the impounded lake will take much rod pressure off of other county streams. Now, sportsmen's efforts are being put to the development of the area—and they are meeting with good success.

In the Northeast corner of the county a dam of 100 acres extent will become a reality due to the efforts of county sportsmen working with a municipal authority. This very important recreational area will be known as Columbus Dam and is situated at Columbus, Pa. Sportsmen, working with the municipal authority, raised sufficient funds to acquire the necessary land, draw up the necessary plans, and to get the project into such shape as to make it desirable and possible for the Pennsylvania Fish Commission to take it over as a project under the stream acquisition program. The water is excellent game fish water—particularly for bass.

Also in the Western part of the county on a stream known as Spring Creek, there happened to be a wonderful series of springs which made the lower two miles of said stream exceptional trout water. County sportsmen acquired the fishing rights to these two miles of stream by paying the land owners for same and created, with the help of the Fish Commission, a restricted fishing project open to all sportsmen to fish with artificial lures only, with a minimum size limit on all trout of 9", and a creel maximum of 6 fish, which will assure its continuance as an angler's paradise.

County sportsmen, who were solely responsible for the reopening of a federal fish rearing station on Farnsworth creek a few years ago, have continued to cooperate with the authorities in the development of the project and its expansion.

In addition to cooperating by helping plant fish, county sportsmen's clubs have spent their own money and have given of their member's time to see the project through. Farnsworth rearing sta-

tion annually raises 50,000 fingerling trout to legal size for planting in streams within the Allegheny National Forest, approximately one-fourth of which is in Warren County.

One-half mile from the village of Warren, on Morrison Run, there was an abandoned small dam—a left-over from a refining operation long since closed down. Sportsmen, in their desire to completely utilize the county's clean waters, took it upon themselves to two caterpillars, and six trucks drained and thoroughly cleaned the dam for the use of bathers. The dam is adjacent to a picnic area maintained by the Allegheny National Forest, and is an ideal addition to the other outdoor recreational facilities which the County offers.

The Editor's Angle

More and bigger muskies bit the dust last season. The ANGLER is receiving an ever mounting list of the catches. As in the case of trout, we receive only a few reports from here and there so our records are extremely spotty. Some of those we do have reports on in addition to those shown herein are:

Wm. Alexapolis, Pittsburgh, Pa.—55-inch, 42½-lb.—Conneaut Lake

Albert Anderson, 48½-inch, 40-lb.—Conneaut Lake

Russell Cubbison, Clarksville, Pa.—48½-inch, 32-lb.—Shenango River

Fred Kohler, Pittsburgh, Pa.—46½-inch, 32-lb.—Lake LeBoeuf

Rupert Nelson, Port Allegany—45½-inch, 26½-lb.—Allegheny River

Merle Klingensmith—43-inch, 30-lb.—Conneaut Lake

Glenn Strauss, Sharon, Pa.—41½-inch, 20-lb.—Shenango River

James Tucker, Tionesta, Pa.—39-inch, 15-lb.—Allegheny River

Lawrence Childs, Tionesta, Pa.—36-inch, 14½-lb.—Tionesta Dam

PENNSYLVANIA'S TROUT COUNTIES (Continued from page 23)

valley through which it flows and thus casts with his eyes a path to its hidden waters.

There are no lunger trout in this brook. But its pools are generously populated with fat, deep colored brook trout. Often the angler has to fish from a kneeling position, flipping his flies into a pool that he cannot actually see, and tightening his line to the sound of the strike. The brook has a steep descent from its source in the hills, and its pools rise one above the other in the manner of stair steps.

Trout from this stream, incidentally, are all natives. None ever

have been stocked in it, for it would be too difficult to get hatchery fish from the nearest highway into its pools.

There is many an angler native to the north-central counties who delights in spending a hot summer afternoon on this, or some similar stream, fishing for the pure delight of the sport and knowing full well in advance that he will have more genuine sport if he lets his creel at home.

But whether the angler turns to the hidden brooks, the rugged mountain streams, the meadow creeks, or the bigger waters he

can be sure of one thing—and that is variety.

I heard an old-time fisherman make a statement one time that I have found by experience to be literally true.

It was this:

"It's possible to fish every day of the trout season in the north-central counties of Pennsylvania and to spend every day of the season on either a different part of a favorite stream or an entirely different stream. From April 15 to July 31 you can fish every day and at the end of the season you'll not have fished the same water twice."

Workers of The Darkness

When we consider the activity of animals during the twenty-four hours, we commonly use three adjectives: if they are active during the night, they are called *nocturnal*; if active by day, *diurnal*; and if active at twilight, *crepuscular*. The smallest group is this last group. Comparatively few animals are most active during this afterglow period, but it is then that the hawkmoths find the trumpet-shaped flowers of petunias and gimson weeds.

The majority of animals are nocturnal. When Shakespeare blessed night as that which knits up the sleeve of care, he wasn't thinking about the animal kingdom as a whole. And were he living today, he probably wouldn't have written it. For in these days of night clubs, theatres, sleep-defying radio and television sets, and many-shift days, man is far more nocturnal than his pioneer ancestors were. In the Bard's time, unless one were a foot-pad or a grave robber, the ordinary citizen retired like the chickens when the sun went down. He barred himself in and shut the windows tightly to keep out the night air which he considered poisonous.

If we consider the entire Animal Kingdom, we'll find much more activity during the hours of darkness, or at least in habitats destitute of light, than during the sunlit hours. Consider a few of the other Orders of mammals, the Class to which man belongs. The Rodentia, the gnawers, those animals that include the rat, porcupine, and the beavers, are most active at night as are the Carnivora, the flesheaters, such as the cat, coyote, and raccoon. The Insectivora, including the moles, spend most of their life burrowing in the darkness, underground. The bats, the only winged mammals, are notorious for their nocturnal habits. During the day they sleep, but when twilight ushers in night, they drop from the cave's roof, and take to the darkling sky on leathery wings. The whale can be regarded as an occupant of the dark. In the upper layers of its watery world, it enjoys at best a vague twilight. The lowest of the mammals, the egg-laying platypus of Australia, sleeps in its tunnel during the day and waddles about during the night.

A Class that is almost an exception to the night activity of animals is the birds. Except when they are migrating, birds are chiefly diurnal. They seem to welcome the return of each day; in the grey of dawn, their spirited orisons begin, and continue until the sun is well above the horizon. But here again in the nighthawks, whip-poor-wills, and

the owls, we find workers of the darkness.

When we drop down to the cold-blooded animals, the activity is determined by temperature as well as by light. The reptiles and amphibians are apt to be active any time that the temperature is satisfactory. The insects are apt to be quite sharply divided in their love for sunshine or darkness. Butterflies, dragonflies, grasshoppers love the sun. Moths, cockroaches, and ground beetles seek the dark. Some, like mosquitos, are active around the clock if the temperature is right.

Continental Quiz

Place 1 check before the native Americans and 2 checks before the Europeans.

- 1. Goldenrod
- 2. Common Dandelion
- 3. Yarrow or Milfoil
- 4. Common Ragweed
- 5. Chicory
- 6. Canada Thistle
- 7. Common Burdock
- 8. Common Sunflower
- 9. Pennyroyal
- 10. Queen Anne's Lace

Our Friendliest Warbler

Perhaps the best known warbler in the United States is the yellow warbler, often called, summer warbler. Its body is more completely yellow than any other warbler, yet it doesn't take on the raw yellow of the goldfinch or the canary. Its faint lines of reddish brown dots also distinguishes it.

It is less active, less nervous, more friendly toward man than the other warblers, and will often build its nest in the trees and shrubs close to his home.

The nest is small and artistically built, well-lined, and comfortable. Here one will find three or four pale eggs that are spotted with dark splashes toward the larger end. Frequently the female cowbird, as she skulks through the underbrush looking for a home in which to leave her large, unlovely egg, will find the exquisite nest of the yellow warblers. She must seem unusually ungainly and completely out of place as she crouches more out of than in the nest. When she flies away, her egg is like a crude stone in a jewel case.

Yellow warblers frequently do not take the fatalistic attitude commonly accepted by other small birds that are parasitized by the cowbird. Other birds will hatch the big egg and feed the huge

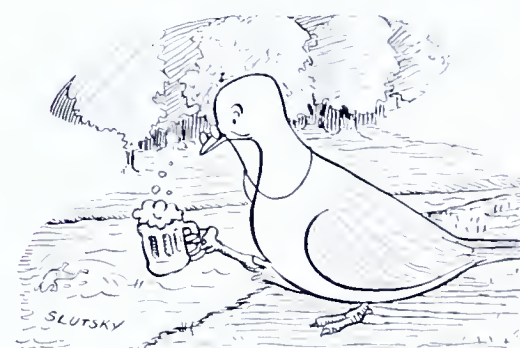
young cowbird although its presence means starvation for their young. One of the first acts of a newly-hatched bird is to stretch its neck and open its mouth. This is instinctive. It is also instinctive for the parent bird to cram food into the mouth that is widest and highest in the air. So the old birds wear themselves out finding food for the cowbird whose mouth is always widest and highest, and their own young starve.

These little warblers often refuse to be a part of this undemocratic procedure. After the big egg is laid and the cowbird is out of sight, the warblers will bury it under new nesting material. This acts as insulation to keep the heat of the motherbird's body from the egg which chills and will not hatch. Often they attempt to roll the egg from the nest, or actually build a new nest atop the old.

Once I removed the big egg from a warbler's nest. Two days later I found a second egg so I removed it too. The next day I found the nest completely destroyed, and I have often wondered if the cowbird did it to retaliate for its missing eggs.

One of the oddest incidents I ever observed occurred on a farm near Confluence. There was a cowbird's egg in a warbler's nest, and the parents were much put out about it. While I was watching them, wondering what they were going to do about it, a purple grackle came along on a nest plundering rampage. In spite of the attacks of the little yellow birds, the big blackbird went to the nest, speared the cowbird's egg, and carried it away. For some reason it ignored the three warbler eggs that were lying in the same nest.

Yellow warblers are at home over much of North and South America. I have listened to their singing in Maine and Alaska. Their song consists of but a few notes, yet one seldom realizes this for the little chaps sing with so much enthusiasm all the day through that the limited repertoire is forgotten



Most birds raise their heads to thank the Lord
Each time they wet their bill
But the MOURNING DOVE holds his beak
in the lake
Until he has drunk his fill.

Answer to Quiz: (Above)

- 1 Check for No. 1, 3, 4, 8, 9
- 2 Checks for No. 2, 5, 6, 7, 10



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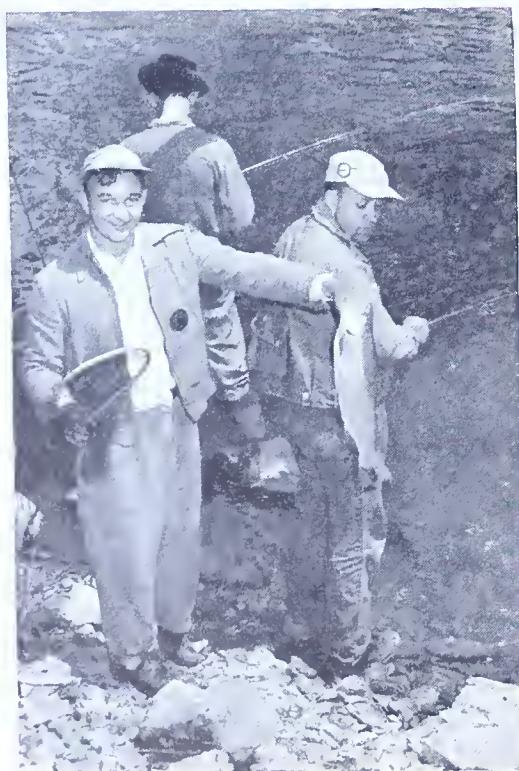
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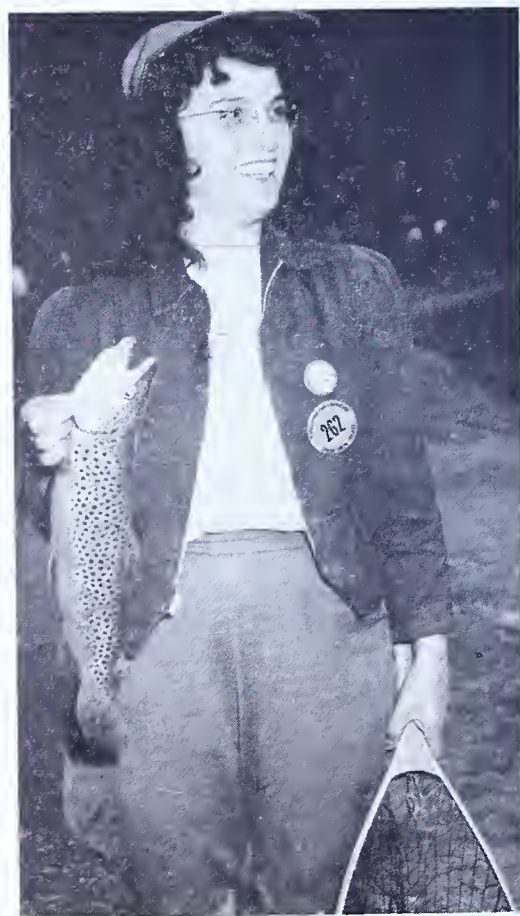
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See Regulations on Page 23



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The Cover . . . HATCH IS ON!
When the trout are rising to May flies on various waters of the Commonwealth, it sends the wires twanging up the backbone of every dry fly artist. A careful squint at the fly on hatch, the tying on of a "reasonable facsimile thereof" and we're all set to whip that pool just ahead. Fish Commission photo by George H. Gordon.

Back cover photo by Cy La Tour & Son



George W. Forrest, Editor

1339 East Philadelphia Street, York, Pa.

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Harvey Lake

(Number 1 in a published series of reports on the Fishery Resources of Pennsylvania Lakes based on inventory studies being conducted by the Fish Management Unit of the Pennsylvania Fish Commission.)*

*The survey party consisted of the following biologists of the Pennsylvania Fish Commission: Gordon L. Trembley, Edward F. Westlake, Jr. (now with armed forces), DeWayne E. Campbell, and Keen Buss; also, student biologists Richard T. Reppert, Lehigh University, and Edward Makovsky, Pennsylvania State College. Report prepared by Mr. Campbell.

INVENTORY studies were conducted on Harvey Lake from June 19 to July 7, 1951. This report presents the pertinent data collected and the management recommendations resulting from these studies.

Location: Northeastern Lake Township, north central Luzerne County, on Harvey Creek, lower North Branch Susquehanna sub-basin.

Type: Natural.

Drainage Area: Approximately 7.2 square miles.

Elevation: 1226 feet referred to U. S. G. S. datum.

Shape: Very irregular; maximum length 15,640 feet; maximum width 4,960 feet.

Area: 658.6 acres.

Capacity: 23,732 acre-feet, or 7,733,000,000 gallons.

Depth: Prevailing 50 feet; maximum 102 feet.

Dam: Stone masonry 120 feet long, 4 feet high. Two spillways are provided.

Topography: Hills on all sides, rising steeply in places and reaching maximum height of 410 feet on south. Public road parallels shore entirely around lake. Practically all surrounding country covered with second-growth timber.

Inlets: Two small streams. 4 to 8 feet wide, 6 inches deep. Also fed by springs.

Outlets: Harvey Creek, 20 feet wide, 6 inches deep.

Ownership: Private parties claim

land to shore line of lake. Commonwealth owns lake.

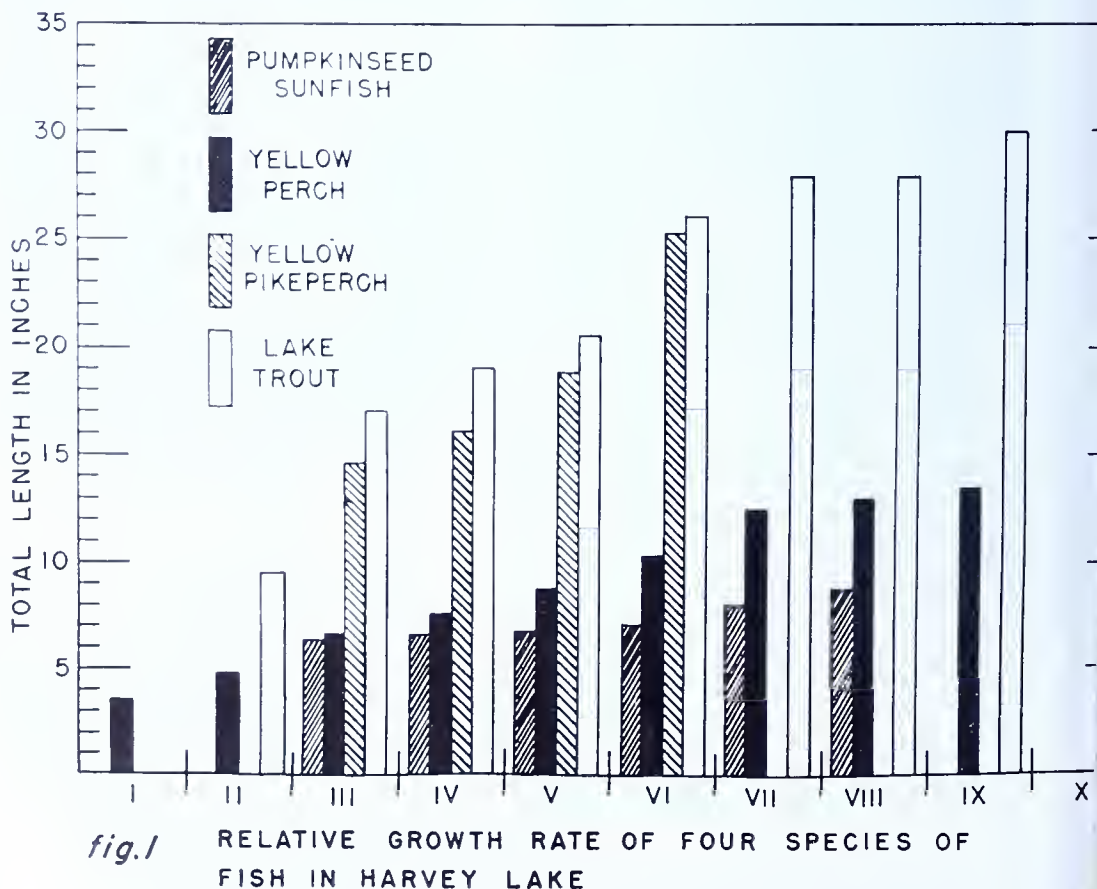
General Conditions: Chemical characteristics are good at all depths. The accompanying cross-sectional view of limnetic conditions (Figure 2) shows the prevailing conditions over two stations. Such waters are relatively rare in Pennsylvania. Few of the state's lakes exhibit such excellent oxygen conditions near the bottom.

Secchi disc transparency is twenty-seven feet. As indicated, the plankton in this water is relatively poor. Zooplankton included Leptodora, Diaptomus, Cyclops, Daphnia, and Notholca. Phytoplankton is represented by Asterionella, Cyclotella, Cisionodiscus,

Planktosphaera, Sphaerosoma, and Dinobryon (two species).

Weed beds are very sparse over the entire lake with the exception of the outlet area. In the emergent and floating group are Pontederia, Nuphar, Brasenia, Decodon, and Sagittaria. Submergent vegetation is made up of Ceratophyllum, Nitella, Utricularia, and Potamogetons.

Present Conditions of the Fish Population: As determined by netting and seining activity, the over-all fish population does not appear to be high. This is also true of individual populations by species; no species is in any apparent state of unbalance. The following twenty-two species appeared in the



investigation:

- Bluegill (*Lepomis macrochirus*)
- Golden Shiner (*Notemigonus crysoleucas*)
- Rock Bass (*Ambloplites rupestris*)
- Pumpkinseed Sunfish (*Lepomis gibbosus*)
- Brown Bullhead (*Ameiurus nebulosus*)
- Yellow Perch (*Perca flavescens*)
- Yellow Pikeperch (*Stizostedion vitreum*)
- Chain Pickerel (*Esox niger*)
- Smallmouth Black Bass (*Micropterus dolomieu*)
- White Sucker (*Catostomus commersonii*)
- Lake Chubsucker (*Erimyzon sucetta*)
- Largemouth Black Bass (*Micropterus salmoides*)
- Black Bullhead (*Ameiurus melas*)
- Lake Trout (*Cristivomer namaycush*)
- Creek Chub (*Semotilus atromaculatus*)
- Spotted Sunfish (*Lepomis punctatus*)
- Fourspine Stickleback (*Apeltes quadracus*)
- Spotfin Shiner (*Notropis spilopterus*)
- Bluntnose Minnow (*Hyborhynchus notatus*)
- Banded Killifish (*Fundulus diaphanus*)
- Johnny Darter (*Boleosoma nigrum*)
- Blacknose Dace (*Rhinichthys atratulus*)

The first fourteen species in this list are in order of abundance as taken by trap net.

The accompanying bar graph (Figure 1) shows the growth of four of the species in this lake. While the growth is not exceptional, it cannot be said to be unsatisfactory for the conditions present. Annual mean temperatures of the water are low and food conditions are generally poor for the warm-water fishes. It is felt that poor spawning conditions are favorable to this situation inasmuch as an appreciable increase in the present population would be reflected in a decline in the growth of those fishes present. In past years this lake has been stocked with pikeperch, bass, bull-

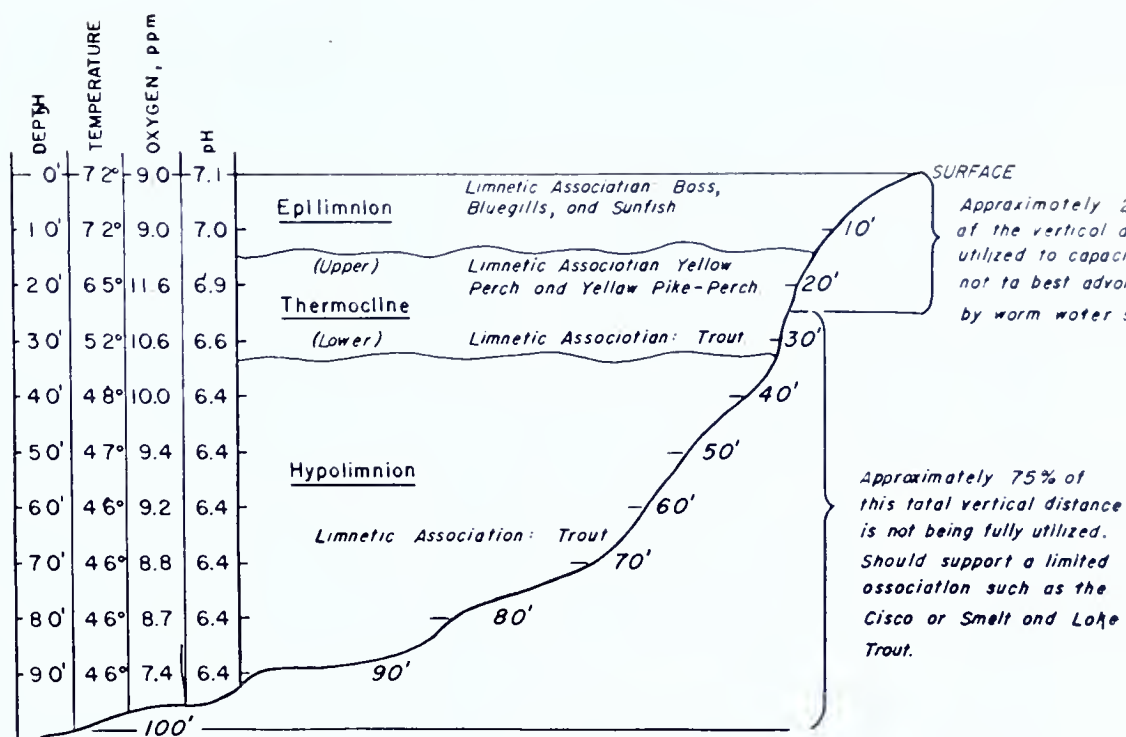


fig. 2
DIAGRAMMATIC CROSS SECTIONAL VIEW OF
LIMNETIC CONDITIONS IN HARVEY LAKE.
LUZERNE COUNTY, PENNA. JULY 2, 1951

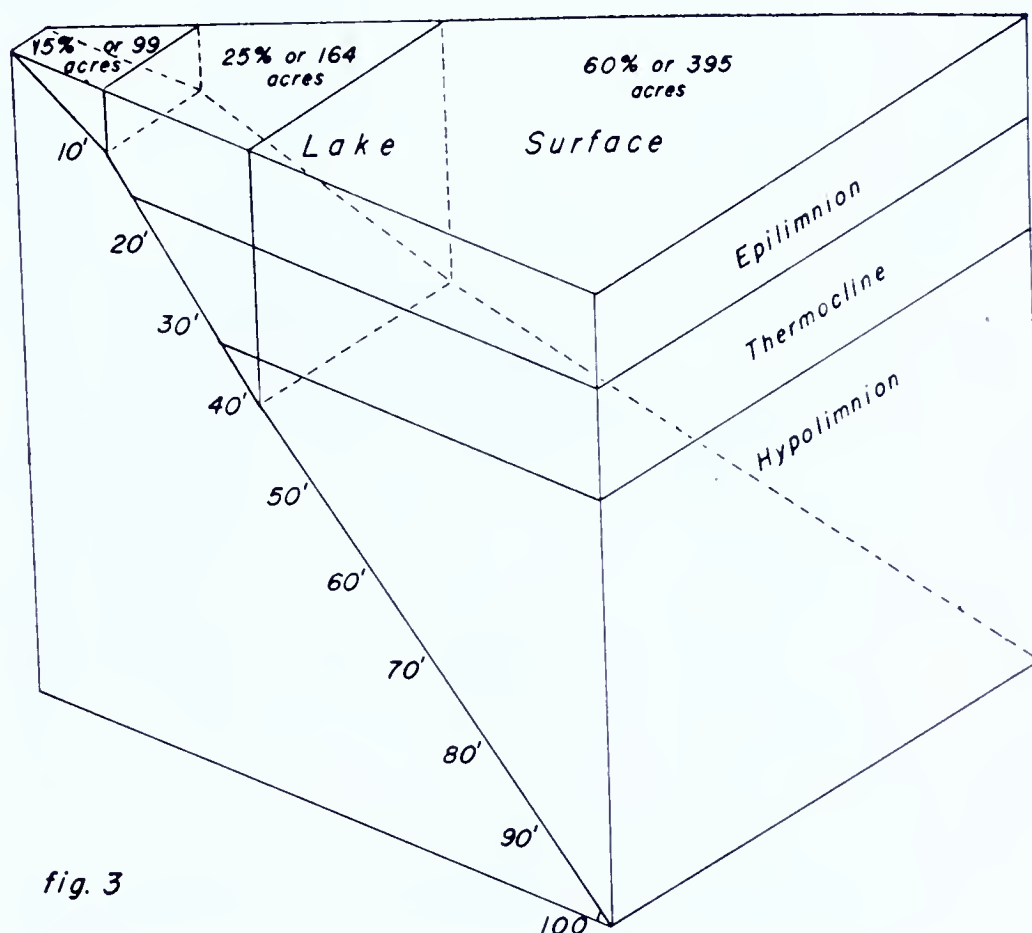


fig. 3
PERCENTAGE OF LAKE SURFACE SUPPORTED BY VARIOUS
DEPTHS IN HARVEY LAKE, LUZERNE COUNTY, PENNA.

heads, yellow perch, bluegills, and golden shiners.

Lake trout were last stocked in the year 1935. Evidence is conclusive that natural reproduction has taken place. No studies of this fish have been made as yet in

Pennsylvania; however, the bar graph (Figure 1) gives some indication of the growth of lake trout in Harvey Lake. Specimens observed during this survey appeared in good condition. Stomach studies disclosed that these fish were feed-

ing on yellow perch fry. Some contemporary workers in the fisheries field believe that in the case of lake trout this is a starvation diet; others feel that starvation diets are directly reflected in the failure to reproduce. Whether or not this is true, the trout population in Harvey Lake no longer provides a satisfactory return to the angler. Natural forage fish for lake trout may be low in numbers.

Major Problems in Management: Management of the fishery resources of Harvey Lake resolves itself into two basic problems: conflict in the recreational use of the water, and the incomplete utilization of the aquatic habitat by the fish species present.

Harvey Lake is the second largest natural water body in the state

of Pennsylvania. Its natural large size, the exceptional quality of the water for bathing and boating, location in a heavy population center, and the limitless resort facilities of the surrounding shores all combine to make it one of the most popular summer areas in Pennsylvania.

Possibly the most significant biological feature of this lake is the paucity of adequate shoal water for the well being of warm-water fishes (Figure 3). Less than 15% of the total surface acreage is water shallower than ten feet. Very little of this 15% is distributed along the shoreline which drops abruptly and precipitously. The bulk of this shoal area lies in three spots, two of which are utilized so intensively as recreational areas

that little use is permitted for the spawning of warm-water fish during their seasons. The third area, near the outlet, is possibly the only one in the lake which provides the essential qualifications for warm-water game fishes. This area was long ago set aside by the local sportsmen as a fish preserve. The value of such "preserves" has been shown to be extremely doubtful in some Pennsylvania lakes.

The recreational use conflict as pointed out here is a problem not unusual to fisheries personnel. The use of water for bathing and boating frequently is declared by anglers to be the cause of empty creels. Research has shown that this is seldom true. Motor boats in particular will do little to deter fish from spawning, as proven in detailed tests by fisheries research institutions. The over-all effect of the use of motor boats in lakes appears to be largely a matter of discouraging the fisherman rather than the fish. It is possible in the case of high powered motor launches that they may contribute to the destruction of sandy shore lines through wave action. In such cases, floating log booms can ordinarily be constructed to minimize shoreline damage. Here, however, such devices would interfere with the use of the beaches by bathers. The installation of brush shelters is desirable, but for the same reasons certain types are impracticable. In an indirect fashion, therefore, these other recreational activities do play a part in making the lake unsuitable for the production of the best fishing at the present time.

Due to the obvious inability to use the management tools cited above and some others useful in the management of warmwater fishes, it is difficult to adjust the conditions for these species. Thus the second problem, incomplete use of the aquatic habitat, assumes a role of greater importance since the scope of management is much less limited. Harvey Lake may be considered a type unusual to Pennsylvania in that it is classed as "oligotrophic" or geologically new. In a sense this classification may be considered as a summation of the findings of the Management Unit. A lake of this kind is usually



AERIAL VIEW OF HARVEY LAKE
(Photo, courtesy of North-eastern
Forest Experiment Station, Kingston, Pa.)

typified by low temperatures, steep slopes, little vegetation of the higher order, poor plankton and relatively great depth. Most of the lakes in Pennsylvania fall into the "eutrophic" stage of lake development. Lakes of this type are in general better suited to the warm-water fishes, and lakes of the oligotrophic type are considered best suited to the cold-water associations, e. g., trouts, whitefishes, etc. From this the most logical conclusion to be drawn is that this lake is better suited to other species than those already present. This assumption appears moreover to be supported by the facts uncovered in this survey. All limnological data assembled currently serves to justify an attempt to introduce to these waters an association better suited to the habitat. As pointed out previously,

the economic factors also contribute to this conclusion.

Management Measures: Based on the recommendations of the Fish Management Unit, and as a direct result of this survey, the following steps have been taken:

1. Fifty thousand lake trout eggs were secured from the New York Conservation Department. These will be raised to the largest practical size to ensure maximum survival of the planting. Within the next two years, or at a suitable size to permit said survival, these will be planted in Harvey Lake.

2. During the time necessary to raise these trout to stockable size, two forage fishes believed suitable to lake trout will be introduced. Plantings of these species will take place as the stock becomes available.

3. To provide a more immediate

return to the angler, rainbow trout and brook trout will be introduced on a purely experimental basis. Results of intensive creel censusing have shown that these species, under similar conditions, have provided good returns in some Pennsylvania lakes. Plantings of these species will furnish more diversified fishing in Harvey Lake and allow the fisherman to enjoy his sport for a period before heavy recreational activities begin. One or both of these species may eventually establish themselves in Harvey Lake as has happened in several other Pennsylvania lakes with less in the way of qualifications.

4. A general creel census will be established to follow the results of this work. It is to the advantage of the fisherman to assist in every possible way to assure the accurate results of this census.

WATER WORMS ON TROUT DIET LIST



As part of the constant studies of fish being made in the Fisheries Research Laboratory of the Pennsylvania Fish Commission at Bellefonte, Centre County, the food habits of various species are carefully observed.

The Trout shown in this picture were feeding on water worms.

The findings are reported by Arthur Bradford, pathologist at the laboratory, and photographed by George Gordon, official photographer for the Fish Commission.

The water worms, nine in number, may be seen in a glass dish beside the trout. The size of the worms may be judged from the fact that the dish in which they lie is four inches in diameter.

Water worms are larvae of the crane fly. Trout find them in decayed leaves and other debris in the water. They vary widely in size, reaching a maximum of several inches.



▲ These mature sea lampreys were taken during fish netting operations along the lower Delaware by Mr. John Wopart, Superintendent of the Torresdale Fish Hatchery.

Lampreys

ARE THEY REALLY DAMAGING OUR PENNSYLVANIA FISHERIES?

By GORDON L. TREMBLEY, Chief Aquatic Biologist,
Pennsylvania Fish Commission

Picture by GEORGE H. GORDON,
Official Photographer

PEOPLE are becoming lamprey-conscious! As a result of the many newspaper and magazine articles dealing with the damage done to lake trout by lampreys in the Upper Great Lakes, many fishermen are ready to believe that all lampreys are harmful to fish and that Pennsylvania fishing is doomed because of these fish parasites. This article is written to dispel this rumor and to point out the real facts of the matter.

At the outset it should be established that the relationships between one animal and another can be determined only through a knowledge of the life histories of the animals concerned—and not by any amount of conjecture or hearsay. In the case of the lampreys, life history studies have been made and a brief consideration of these should reveal the economic importance of these creatures.

First let's take a look at the sea lamprey—the one which is so frequently brought to the minds of fishermen today. Biologists recognize two forms of the sea lamprey which, although they have the same scientific name (*Petromyzon marinus*) are distinguishable by their varied life histories. We may call these two the true sea lamprey and the Great Lakes sea lamprey.

The True Sea Lamprey

This is the form which for many years has been making annual migrations up such rivers as the Susquehanna and Delaware. As the name implies, the native home of the sea lamprey is the ocean. Here the adult lamprey attaches itself to fish and, by means of its rasp-like tongue, penetrates the flesh of the fish and feeds upon the body juices of its host—its sole food. When sexual maturity is reached, the true sea lamprey leaves the ocean and ascends freshwater streams (spring of the year) where it digs a nest, spawns and *then dies*. During this spawning run into fresh waters, the sexually mature lampreys *do not feed* and, therefore, do not affect the fish life of our streams.

▼ A close-up of sea lamprey eggs.



Eggs of this lamprey hatch within two weeks into eyeless and toothless larvae called ammocoetes. After leaving their nests, young lamprey move downstream and burrow into mud along the stream's margin. Here the current brings them small bits of organic material as food.

By the time larval sea lampreys have reached a length of 6 or 7 inches (which may take three or more years) they have developed structures which give them an appearance more like the adult. The circular mouth is now armed with teeth. The file-like tongue has appeared and the lamprey is ready for business. The transformed larva now leaves the stream bed, migrates to the ocean and begins its life as a fish parasite. Certain glands of the mouth aid the lam-

prey in its blood-sucking activities by secreting a substance which prevents coagulation of the fish's blood.

And so it is in the *ocean* that the adult sea lamprey becomes a true fish parasite and *not in fresh waters at all*. The sea lampreys which are seen migrating upstream in the Delaware and Susquehanna Rivers are doing no damage for they are not feeding during this stage. They are on their way to spawn—after which they die. Likewise, the larval lampreys in fresh water (which, incidentally, are choice bass bait) have not reached the parasitic stage.

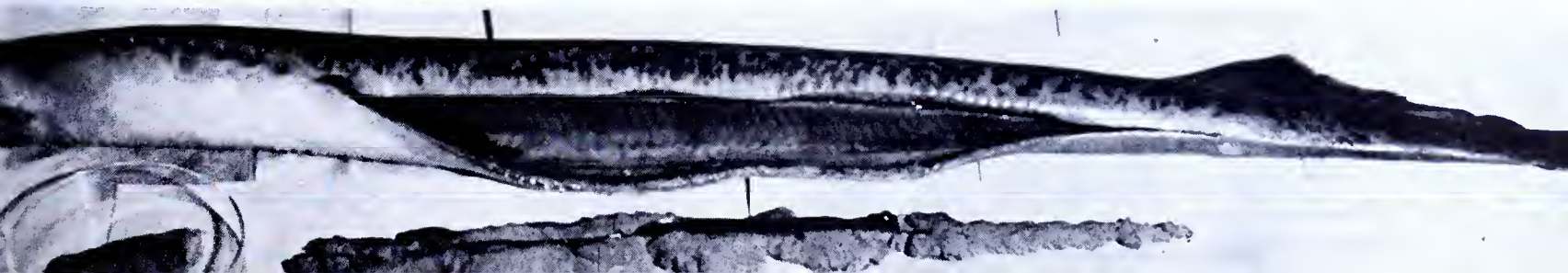
The Great Lakes Sea Lamprey

In the Upper Great Lakes, nature has played one of its pranks. For here, over past years, a type



▲ The anterior portion of a sea lamprey showing the seven gill openings. Years ago this lamprey was called "seven-eyes."

▼ A sexually mature female sea lamprey taken from the Delaware River. The entire egg complement has been removed from the body cavity. More than 43,000 eggs were counted.



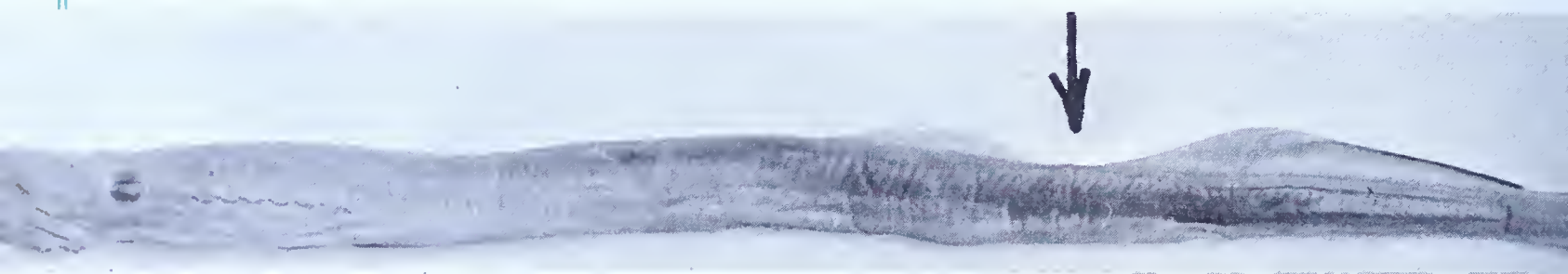
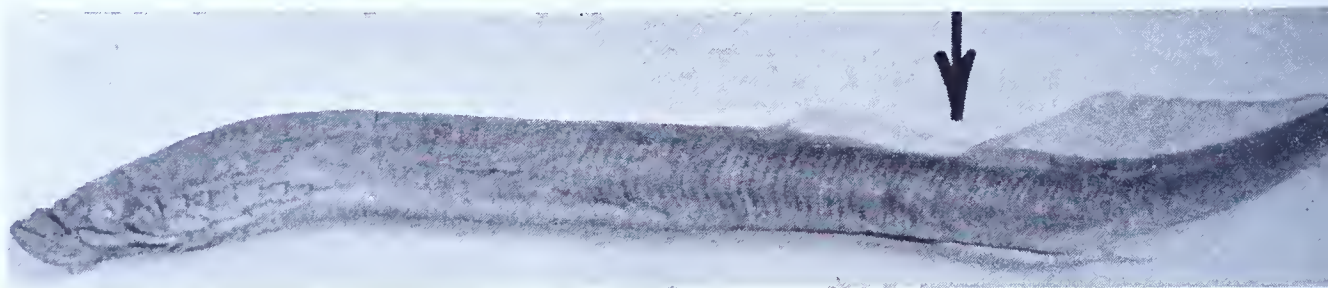
➤ The "business" end of the sea lamprey on the right and the silver lamprey on the left.

▼ A mature brook lamprey and a young sea lamprey. Note difference in dorsal fins. The brook lamprey is not parasitic on fishes.



➤ Brook Lamprey.

▼ Sea Lamprey.



of sea lamprey has developed which is able to complete its entire life cycle in fresh water. The adults spawn in tributaries of the lakes but the transformed larvae run down only as far as the lakes themselves where they reach adulthood and become parasitic on lake trout and other fish species. The outstanding difference between the Great Lakes sea lamprey and its ocean-going relative is the place where it spends the adult stage. But this is a big difference for the adult stage is the parasitic one.

Fortunately, Lake Erie has escaped the depredations of the Great Lakes sea lamprey. This may be due to the poor suitability of many of its tributaries for lamprey spawning. (See PENNSYLVANIA ANGLER, September, 1950, for an account of lamprey studies in Lake Erie.)

Other Species

Probably the lamprey most often seen by fishermen in Pennsylvania is the brook lamprey (*Entosphenus lamottenii*). It inhabits fresh water entirely and can be observed spawning in stream riffles in the spring. The brook lamprey is often mistaken for the sea lamprey. Figure 6 shows that the two species can be distinguished by the character of the dorsal fin. An interesting feature of the life history of the brook lamprey is that it does not feed at all during its adult stage. It is not, at any time, parasitic on fishes.

The silver lamprey (*Ichthyomyzon unicuspis*) is found in Lake Erie and has a life history somewhat similar to that of the Great Lakes sea lamprey. Although the silver lamprey is parasitic, commercial fisherman of Lake Erie

report practically no damage from it.

In conclusion, it appears that there is little cause for fishermen to worry about damage from lampreys in Pennsylvania. This is particularly true in the Susquehanna and Delaware River systems as pointed out above. We can not, of course, overlook the fact that a population of the Great Lakes sea lamprey does exist in Lake Erie. However, the numbers of both this species and the silver lamprey are apparently too limited at present to cause appreciable damage. Fish Commission technicians, who have been checking on lampreys in eastern Lake Erie for several years report no increase in numbers. As for the little brook lamprey—it is just an interesting, native member of the fauna of some of our streams—and is not harming fish at all.



Rainbow and Brown Trout

History of Fish Introductions Into Pennsylvania

V

The Brown Trout

(Taken from "Trout of Pennsylvania"
—PENNSYLVANIA ANGLER—May, 1949)

The brown trout is a native of the British Isles and Europe. In 1883 a consignment of brown trout eggs was sent to the United States Government from a German fish hatchery. A portion of these eggs was allotted to a state fish hatchery in Pennsylvania. These eggs were shipped from Germany in December of '83 and delivered to the state hatchery in Pennsylvania in the very early part of 1884; therefore, this fish was first introduced into the waters of Pennsylvania in 1884. From the offspring of this original consignment of eggs, brown trout were planted or stocked in many streams of the state. In the early days of this fish, it was commonly called "German Brown Trout."

Shortly after the original introduction of this fish from Germany, consignments of eggs were shipped to the United States from the British Isles. In the British Isles at that time this fish was commonly called the "Loch Leven Trout." It is doubtful if there is any great difference between the German trout and the Loch Leven trout of the British Isles. It is said that if German fish were taken to the British Isles, they soon took on characteristics of the native fish; and the

same proved true if the trout of the British Isles were introduced to the European continent.

Following the introduction of these fish, it was assumed that they were two different species. However, this is doubtful; but if there were two different species, through hatchery propagation the English and German fish have been crossed and recrossed until they have lost their identities and now they are commonly called the brown trout.

Brown trout do very well in the waters of Pennsylvania and in other waters of the United States. Their spawning habits and mode of life are very similar to those of our native brook trout and the factors that have been detrimental to the natural breeding of our brook trout likewise have been just as detrimental to the brown trout.

VI

The Rainbow Trout

The natural home of the rainbow trout is in the western part of the United States. At one time these fish were very abundant in streams and rivers of the Pacific slope whose source of water was supplied from the snow-capped mountains; which follows that they are naturally a fish of extremely cold, clean water. In 1883 a consignment of rainbow trout eggs taken from fish of the Pacific slope was shipped to the state fish hatch-

ery at Donegal Springs, Pennsylvania. These eggs were hatched and the fry stocked in local streams in that vicinity. Since that time, various fish commissions and the United States Government have stocked many rainbow trout in the waters of eastern United States. In the beginning, most of these stockings met with failure. This was probably due to the fact that these fish could not survive the high temperatures of our present-day trout waters. As time went on, strains were developed at the various fish hatcheries in the eastern United States that eventually became acclimated to our conditions; and, at the present time, very favorable results are being obtained in stocking the so-called eastern domesticated rainbow trout.

Ancient Fishes of Pennsylvania

IV

The Sturgeons

The sturgeons are a remnant of an ancient group of fishes. A number of species occur in both fresh and salt water. Three species are found in Pennsylvania representing both the fresh water and marine species. The lake sturgeon (*Acipenser fulvescens*) represents the former type while the Atlantic sturgeon (*Acipenser oxyrinchus*) and the shortnose sturgeon (*Acipenser brevirostris*) represent the latter type.

Not too many years ago the sturgeons were plentiful: so plentiful, indeed, that farmers used them for fertilizer and fishermen threw them on the banks to die because they considered them a nuisance in their nets. Today, after this wanton destruction, they are very rare in the state. When they are taken, the smoked sturgeon and the caviar (which is manufactured from the roe) command the highest prices on the market.

In Great Britain, the sturgeon is a royal fish. Under a law enacted by King Edward II, "The King shall have the whales and great sturgeons except in certain places privileged by the King."

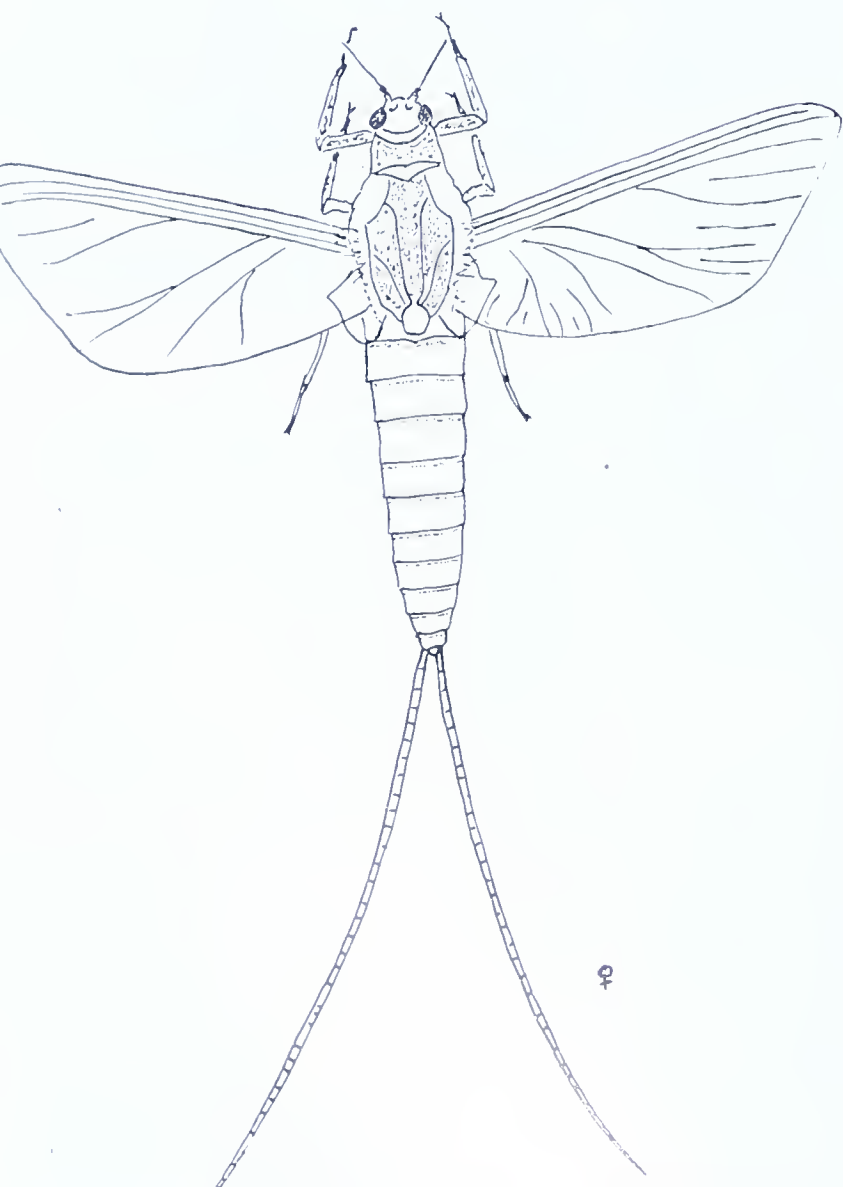
Feeding Habits:

Sturgeons are bottom feeders. The mouth, which is located on the underside of the head, is fitted

(Turn to Page 29)



Ephemera



Baetis Vagans

May Fly

ARISTOCRATS

By ALVIN R. GROVE, JR.

Author of THE LURE AND LORE OF TROUT FISHING
(Stackpole Co., Harrisburg, Penna.)

THE *Baetidae* is a family of May flies which most fly-tying or fly-fishing anglers strive to imitate. The fly fisherman's flies belonging to this family read like a Who's Who of the acceptable imitations that even very respectable trout will take.

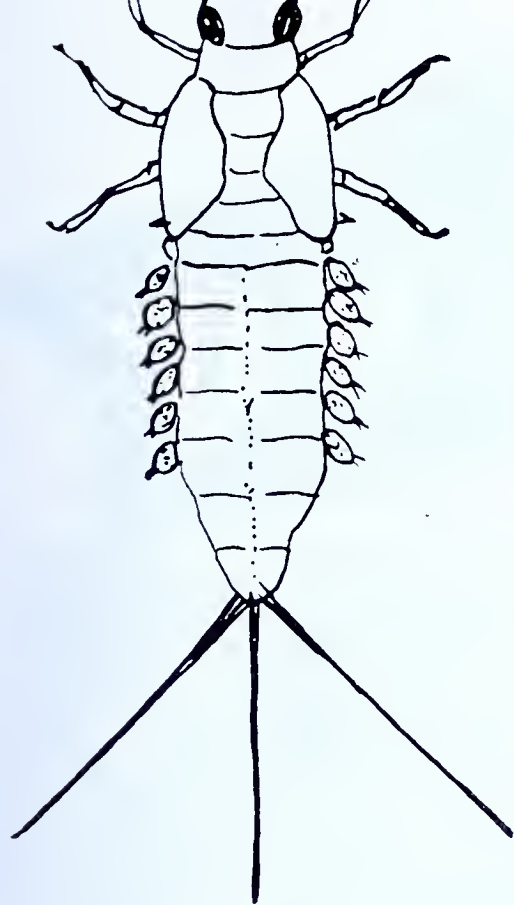
In most cases, the American fly fisherman knows too little about his own *Baetidae*. As a consequence, very general imitations are tied over English patterns and then sold to be fished in this country.

The natural flies have a very wide distribution, both here and in England. As a result, these naturals have served as the patterns for many successful imitations.

Some of the *Baetidae* inhabit the smallest and swiftest streams, whereas others are mud borers and live in the large and quiet meadow waters of some of our eastern streams. Like all May flies, the immature forms are called nymphs, and they provide an abundance of natural food for trout. As hatching adults, they are the subimagos or duns of the fisherman, and finally as spinners they return to the water for the act of egg laying, or ovipositing.

Imitations of many of the *Baetidae* can be tied in all the stages of their development, and these can be fished with success. Indeed, there would be very few times when the fly fisherman would be at a loss if he were well-equipped with an adequate selection of these flies.

An especially interesting part of the life cycle, or behavior, of some *Baetidae* concerns certain adults who walk into the water on partly submerged rocks or logs and boards, there to lay their eggs. Sometimes, these adults are washed from their submerged, egg-laying locations; then they are freely taken by trout. This peculiar situation results in the tying of the dry-fly pattern (adult) in a wet adaptation. In this instance, a wet fly tied in the shape, size, and color of the adult fly will produce better than an



Blasturus

accurate imitation of the immature or nymphal stage.

However, nymphal imitations should not be overlooked, and this is evidenced by such celebrated patterns as those of G.E.M. Skues.

The habit of underwater egg laying has lead to the wide use of devices for food improvement work in many famous English rivers. Egg-laying boards are often floated on top of the water, attached by a length of wire to a stake driven into the river bottom some distance above the floating board.

These precautions are necessary to prevent certain caddis flies from invading the newly laid eggs and eating them before they have an opportunity to hatch. The placing of partly submerged rocks or slabs of concrete in swift water will often prove tempting to the egg-laying female and consequently result in increased food content, better hatches, and, in the end, improved fishing. It is unfortunate that more of this type of stream improvement work has not been attempted in this country.

The family *Baetidae* is broken down or subdivided into genera, and, of these, the following are the most important to the fly fisher: *Siphonurus*, *Isonychia*, *Blasturus*, *Leptophlebia*, *Paraleptophlebia*,

Ephemerella, *Caenis*, and *Baetis*. Likely, there is little need to know or to remember all of the scientific names. But, translated into certain of the fisherman's flies, they become the March Brown, the White-Gloved Howdy, the Leadwing Coachman, the Iron Blue, the Hendrickson, the Pale Evening Dun, the Olive Dun, *Caenis*, Blue Quill, Black Quill, and others, which are familiar to the dry-fly and wet-fly fisherman.

The Brown Quill belongs to the genus *Siphonurus*. Actually, the immature, or nymphal, stage is called Brown Quill, whereas the adult subimago is commonly called Little Brown Dun, and the imago the Brown Quill or Brown Spinner. The natural insect is about one-half inch long with wings a little shorter than the body. The nymph is essentially yellowish in appearance. But the adult is somewhat darker with yellowish head, and the thorax and abdomen are a reddish, rich brown color.

Two common flies of the genus *Isonychia* are the Howdy or White-Gloved Howdy and the Leadwing Coachman. The nymphal form of the Howdy, called the Howdy Nymph, is about one-half inch long. The back of the nymph is a rich chocolate, but the underparts are lighter. The adult is about as long as the nymph, with wings approximately the same length as the body. Its head is yellowish, but the rest of the insect is a brownish or tawny yellow color. The legs are essentially light in color, and the tails are white, tinged with yellow.

The Dark March Brown is a member of the genus *Blasturus*. The nymph, very common during March and April, is called the Dark March Brown Nymph and is essentially chestnut brown in color. The body length is a little less than one-half inch. The adult, sometimes called Early Brown Spinner, Red Quill, and Dark March Brown, is less than one-half inch in length, with wings as long as the body, or perhaps a little longer. The wings are stained with brown. The adult has three tails, the center one of which is shorter. The general overall color is brown but somewhat darker toward the tails and on the back of the insect, with a lighter,

tawny brown on the underparts.

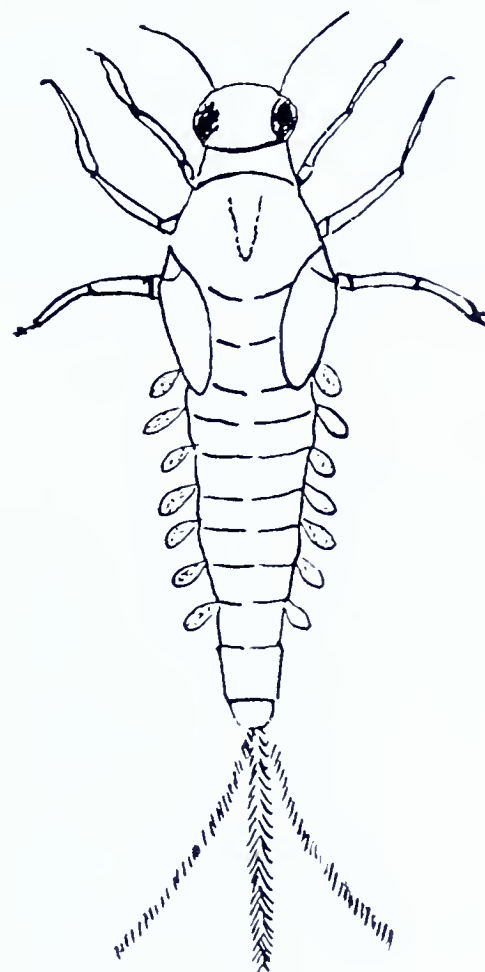
The Pale Evening Dun, Olive Dun, Hendrickson (female), and Red Quill (male) are all members of the *Ephemerella*. Certainly, the Pale Evening Dun and the Hendrickson are known to all fly fishermen.

The Pale Evening Dun nymph is hardly more than a quarter of an inch long, essentially dark brown in color but spotted with paler dots. The wing pads are dark brown. The adult is about the same length, with wings as long as the body, or slightly longer. The body color is a pale whitish yellow; the legs and tails are light in color.

Really good fishing can be had with a fly tied wet but in the pattern of the adult fly described above. This has often worked better than an imitation of the actual nymph.

The nymph of the Olive Dun varies somewhat in color from a pale gray to deep olive brown. Both it and the adult are slightly less than one-half inch in length. The wing of the adult is about the

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Siphonurus

BANNERS

OF

MAY

By

WENDELL

P.

DITMER

PERHAPS one of the loveliest sights you will see this spring as you head for your favorite fishing streams will be the white banner of the Dogwood interspersed with the purplish-pink blossoms of the Redbud tree. Such startling beauty seems to call forth many exclamations of praise for spring.

The Flowering Dogwood is widely distributed east of the Mississippi, and is the state tree of Virginia. Both George Washington at "Mount Vernon," and Thomas Jefferson at "Monticello" loved the Dogwood and planted it in prominent spots on their estates.

The Dogwood is a little tree with branches which are generally straggling and horizontal. The tips of these branches are terminated by buds enclosed in four scales, like the husk of a hickory nut. When spring comes, these scales loosen, expand, turn green, then fade into pure white, forming the four petals or bracts of the bloom. The true flowers are not easily noticed, clustered in the center of these four large petals. Lured by the white signals of the Dogwood in bloom, many nectar-loving insects come to the flowers, cross-fertilizing them while they supply their needs. The leaves appear generally after the tree is in full bloom, and they are glossy,

passing through changing hues from rose to green.

Legend tells us that the Dogwood tree was once very large, the size of the mighty oak and other forest trees. Because of its great strength and firmness it was used for the cross on which the Christ was crucified. Because Jesus sensed the shame and sorrow which the tree was suffering, He promised that the Dogwood tree would never again grow large enough to be used for such a purpose, but should become slender, bent, and twisted. The white petals form the cross, and the brown spots at the ends of each petal represent the nail

prints, brown with rust and stained with blood. The center or true flowers depict the crown of thorns.

In addition to presenting a beautiful picture in spring, the Dogwood has been put to many uses. Primary among these is the making of shuttles for the textile industry because of its high resistance to sudden shock. For the same reason it has long been used for the head of golf sticks, mallet heads, wedges, and chisel handles which must withstand constant hammering. Even the jewelry business finds a use for Dogwood sticks in cleaning deep-seated lenses,

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The purity and beauty of the flowering dogwood is beloved by everyone. It is the state flower of North Carolina, state tree of Virginia.

THIS article deals with the Trichoptera or caddis flies of Pennsylvania in an attempt to give to fishermen something of what is known of this important and most interesting Order of insects. There are over 125 genera of Trichoptera listed for North America and the number of species is well over 750. Half of these are found in eastern United States, and more than 145 species have been found in Pennsylvania.

Caddis flies and related insects as fish food has been known for many years. Their importance depends upon the quantity of the kind of species that are found on certain streams. This does not include only trout waters, as larvae and adult caddis flies have been taken in many species of fish on all types of water. The stomach contents of many trout, when large hatches are present, showed that 75% of their food consisted of caddis flies. The larvae of both Stone and May flies feed quite extensively on the larvae of the caddis flies. Taken as a whole, Trichoptera over a period of months is a very important fish food and especially at high peaks in certain hatches. The case-bearing larvae are generally well known, yet it is a different story concerning the adult insects. Many are never seen except at night time.

Adults

The adult caddis flies have thread-like and very long antennae, which are always extended whether in flight or at rest, and are thought to be the seat of the sense of smell. The mouth parts, rarely having mandibles, form long sucking tubes and in many cases can be used for lapping up food. Very little feeding is done in the adult stage. Wings are very simple with few cross veins and are never covered with scales. These wings stand roof-like over the abdomen, unless the insect is in flight. The power of flight is poorly developed and in most species is quite slow, but most adult caddis flies can run rapidly and in daytime rely mainly on this type of locomotion to escape danger.

The adults emerge mostly at night and some species, although very abundant, are never seen on account of their nocturnal habits.



Caddis Fly Cases, made of little pebbles, sticks or leaves which they have cemented together with their own saliva. The larvae can move their houses from place to place in the stream bed, as they choose. Photo by—Wm. T. Foster, Pa. Dept. of Labor and Industry.

THE CADDIS FLIES

builders of portable houses

By E. M. CRAIGHEAD

Adults of certain species of caddis flies can be taken nearly every month of the year, and during the winter on very warm days adults may be collected on lighted windows providing the building is located close to a stream. The bodies of these insects are very soft and often covered with soft hairs. There are four wings, which, when not in use, are folded against the side of the body. In many species the adults go under water to lay eggs, or with egg mass attached to body, crawl under sticks and stones and never leave the water again. A few known species bring forth the young alive. (viviparous)

Eggs

The number of eggs varies from 300 to 1000 per female. Eggs are laid in ropes or masses of gelatin or cement-like substance in or near the water and often under stones in the stream, each hatching into a worm called a larva. All egg masses have a large amount of gelatin, even those laid in long strings. A few species lay the eggs singly, and these are placed in crevices of submerged wood. Some are dropped free or are fastened just below the water's edge, or placed on damp earth or on foliage extending over the water. Newly

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By ART FLICK

— Author of —

STREAMSIDE GUIDE
TO
NATURALS AND THEIR
IMITATIONS*

(An Angler's Classic)

ONE DAY late last spring, I worked upstream to where one of my companions was fishing, to see how he was faring. There was a good hatch of those miserable tiny mayflies on the stream—the small rascals we imitate with a size 18 or 20 Dun Variant. Because of its size (or lack of it) and the fact that they always seem to emerge on dark days, fishing to rising fish with the proper imitation just about drives a dry fly man nuts.

My friend had been fishing over what appeared to be a decent fish for at least 20 minutes, and although it had been feeding consistently, he had not been able to raise him, except for a splash rise when he first put his fly over him. Although a darn good fisherman, he had about reached the stage where he was ready to throw his tackle into the stream and take up golf, and am afraid my “needling” didn’t help matters any. In fact, things took a turn I hadn’t counted on when he finally said, “okay, wise guy, let’s see you take him.”

Because the fish had apparently become suspicious and had seen that little Dun Variant float over him so many times, I felt there was little use in trying to get him to come to it without giving him a long rest. Going through my fly box, I picked out the largest Grey Fox Variant I had, and when I say large, I mean just that. As a strict advocate of “matching the hatch,” this was rank heresy, and compared to the naturals that were on the stream, it looked like a bail of hay floating down.

As luck would have it, just as it drifted over the trout’s feeding position, the fly rolled as those large variants often do. This movement was too much for the trout, and he hit the fly like a ton of bricks. Had the fly not rolled as

DECEPTION

it did, just at the proper moment, there is no doubt in my mind that the fish would have passed it up, but that did not help take the sting out of my friend’s remark that apparently I preached one thing and practiced another. Nine times out of ten, under similar conditions, the fish would not have come to a fly that was just the opposite to what it was feeding on. However, this was an extreme case, and examination of the stomach which was packed, disclosed this fish had fed mostly entirely on those small flies, despite the fact there were a few other mayflies emerging. There were some Grey Fox (*Stenonema fuscum*) and Green Drake (*Ephemera guttulata*) on the stream, both of which trout normally take, but this fish had passed them up, taking instead the smaller flies.

Another exception to my sincere belief that deception pays off, is a chap I fished with for many years from Germantown. He fished with one and only one pattern of dry fly—Lead Wing Coachman—which he carried in all sizes from 8 to 22. Although he rarely killed a fish, returning almost all to the stream, he certainly caught more than his share, and it was really something to see him operate. He would stand in a pool for an hour at a time, just like a big old blue heron, without making a cast. But any fish that showed during that time was a gone goose, for by the time he made his first cast he knew everything about current, drift, etc., and if necessary he would go down to as light as 5X gut tippets.

However, this man is a far cry from the average fisherman, and in his case, his presentation of a fly was such that he could fool almost any trout that was interested in surface food. This again is an extreme case, and if most of us tried his methods, we would not come home with anything to smell up the frying pan.

In my book, one of the most important things the *average dry fly fisherman* should practice is *deception*. Very few have the necessary time it takes to really learn a stream, or to become expert fishermen. Most have just a few weekends, or maybe a week at best to go fishing, and naturally do not want to spend a lot of time at “stream learnin’.” And too, you may thoroughly learn a stretch of your pet stream, only to find that the following year, due to freshets or other natural causes, the area you knew so well has completely changed.

Fortunately, the aquatic insects in the stream do not change, except that some years they are more plentiful than others. Year after year, they come in the same rotation, one species following the other like clockwork. And too, the insects (mayflies) that furnish most of the sport for the dry fly man, are the same in all our eastern streams. True, some certain waters have more species than others, but if you fish in Pennsylvania, New York, New Jersey, Connecticut, or any other state in the east, you will find that proper

* G. P. Putnam’s Sons, New York.

imitations of the natural mayflies will work just as well *if fished at the proper time* in one state as in another. Inasmuch as there are less than a dozen daytime emerging mayflies that are of real importance to those of us who like the floating fly, doesn't it make sense to try to deceive the trout into believing our imitation is the real McCoy?

My own experience has been that when trout are feeding on natural flies that are emerging, they are apt to be much more selective than when there is no "hatch." Can you think of any sensible reason for not offering the fish something that closely resembles an insect on which they do feed? On the other hand, if you are lucky enough to hit one of those rare days when the fish are not at all selective, your good fly will still work just as well as some other pattern.

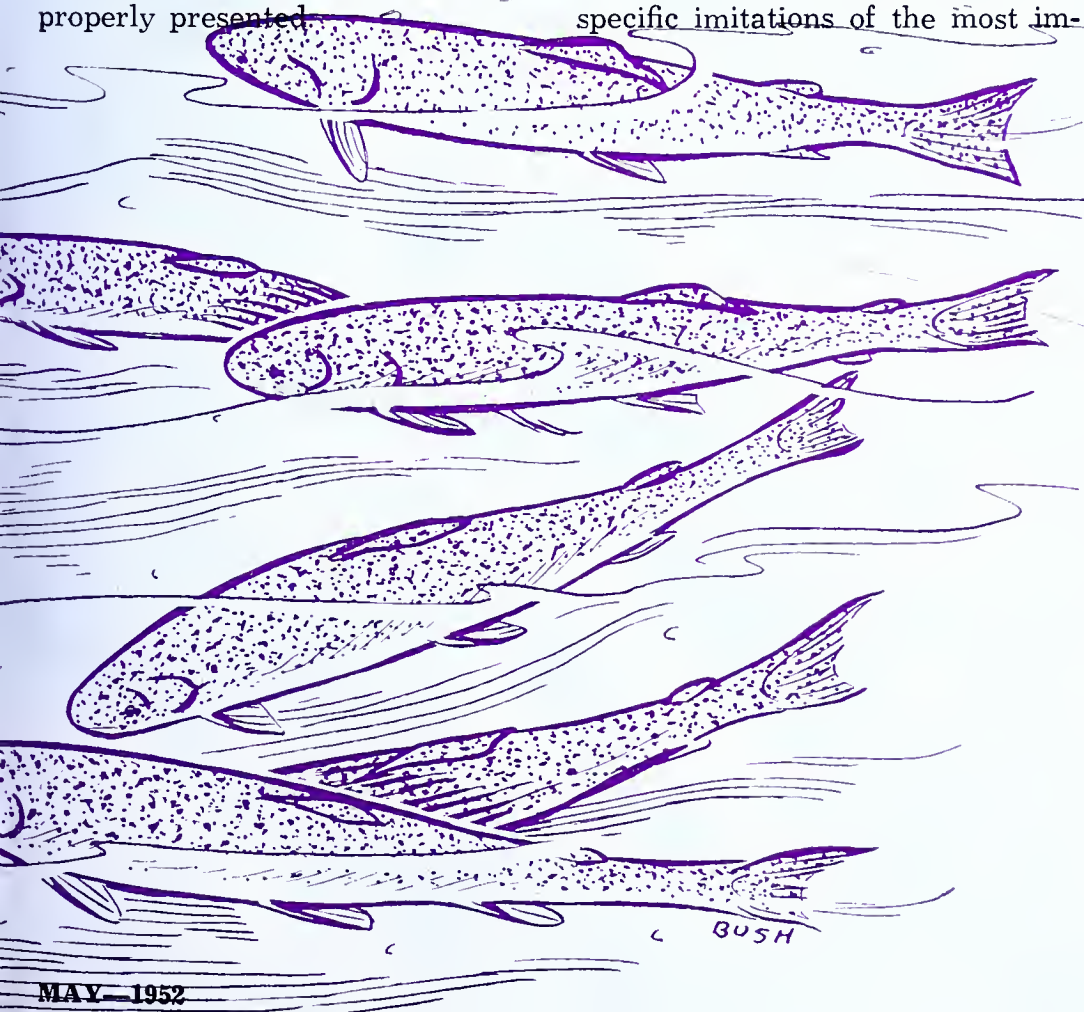
When fish are not on the feed, and you are going along the stream trying to "pound up" a trout, it has been my experience that one dry fly is just as apt to get results as another if your presentation is good. But once again, there is no particular point in carrying a multitude of patterns, for you are just as apt to take fish on any of the deceptive flies, if properly presented.

Some fishermen claim they catch just about as many trout on one fly as on another. This may be perfectly true in the case of small fish, up to nine inches, or those that have been recently stocked, for most of the hatchery fish, until they have been in the stream for a long period, are definitely on the dumb side. On the other hand, those that have grown up in a stream, have pretty well learned their A, B, C's of stream entomology, and if they have reached the length of twelve inches or more, have seen a lot of feathers, fur and steel go over them. Those babies don't fool so easily and a fly has to look pretty much like the real thing, before they will come to it. Is there one among you who doesn't get ten times as much satisfaction out of taking a beautifully colored wild fish, than one of those not so pretty things called trout that has spent most of its life in a concrete tank?

Although I fish just about every day of the season from the time our dry fly fishing starts, until mid-June, when our streams warm up, the only patterns of dry flies I carry are: Quill Gordon; Hendrickson; Red Quill (American tying); American March Brown; Grey Fox and Cahill, in the regular winged patterns. All of them are specific imitations of the most im-

portant mayflies on our streams. Along with them, I use large Grey Fox Variants, which seem to work very well when fish are feeding on Green Drakes, and it is also a very good fly to use when trying to pound up fish that are not feeding. Also included are the large Dun Variant, which works well when *Isonychia bicolor* is emerging; Cream Variant which is effective in the evening, when *Potomanthus distictus* and other cream colored flies are coming; and last but by no means least, the little Dun Variants, tied on 18's and 20's, to use when the mayfly midgets are on the stream. Being a dope, I fish dry almost entirely, and it is my sincere belief that the above patterns will pretty well take care of a fisherman right through the season, to successfully imitate the important mayflies that appear on most of our streams. I most certainly do not mean to imply that none of the other flies are good—nothing could be farther from the truth, for many of the other patterns have stood the test of time.

One problem many fishermen seem to have is obtaining good copies of the deceptor type fly. An acquaintance of mine once complained that this business of matching the hatch was, as he put it, "for the birds." He was fishing one day when there was a large hatch of *Ephemerella subvaria* on the stream. Being the fly the famous Hendrickson was tied to imitate, he put one on—that is he had bought it from a reputable store as a Hendrickson. However, he was only able to raise small fish to it, although fish were feeding all over the place. When I asked him to show me one of the flies, found the reason for his lack of success, for it was not even close to the real Hendrickson. When that grand gentleman of the Beaverville, Roy Steenrod, originated the pattern, he spent a great deal of time perfecting the fly, but *Oh Brother!!!!*—the liberties some fly-tyers take with original patterns is something. Sincerely, Mr. Average Fisherman, if you want to improve both the quality and quantity of your take, lean a bit more to deception—it will not only save you cash, but will make your fishing much more pleasant.



YESTERYEAR ON PENNS CREEK





By Charles M. Wetzel

IT was the year 1785. George Snabble lazily sprawled on the summit of Jack's Mountain gazed down into the valley below. Far off in the distance smoke curled high above the white pine forest and in their dark shadows George fancied he could detect the glimmer of the freshly peeled logs of his cabin. The smoke brought a sense of peace and comfort especially now when one could have a fire without fear of marauding Indians. Inside the cabin Helen his wife would be busily engaged in preparing the evening meal, probably pounding corn into meal on the family block or mortar.

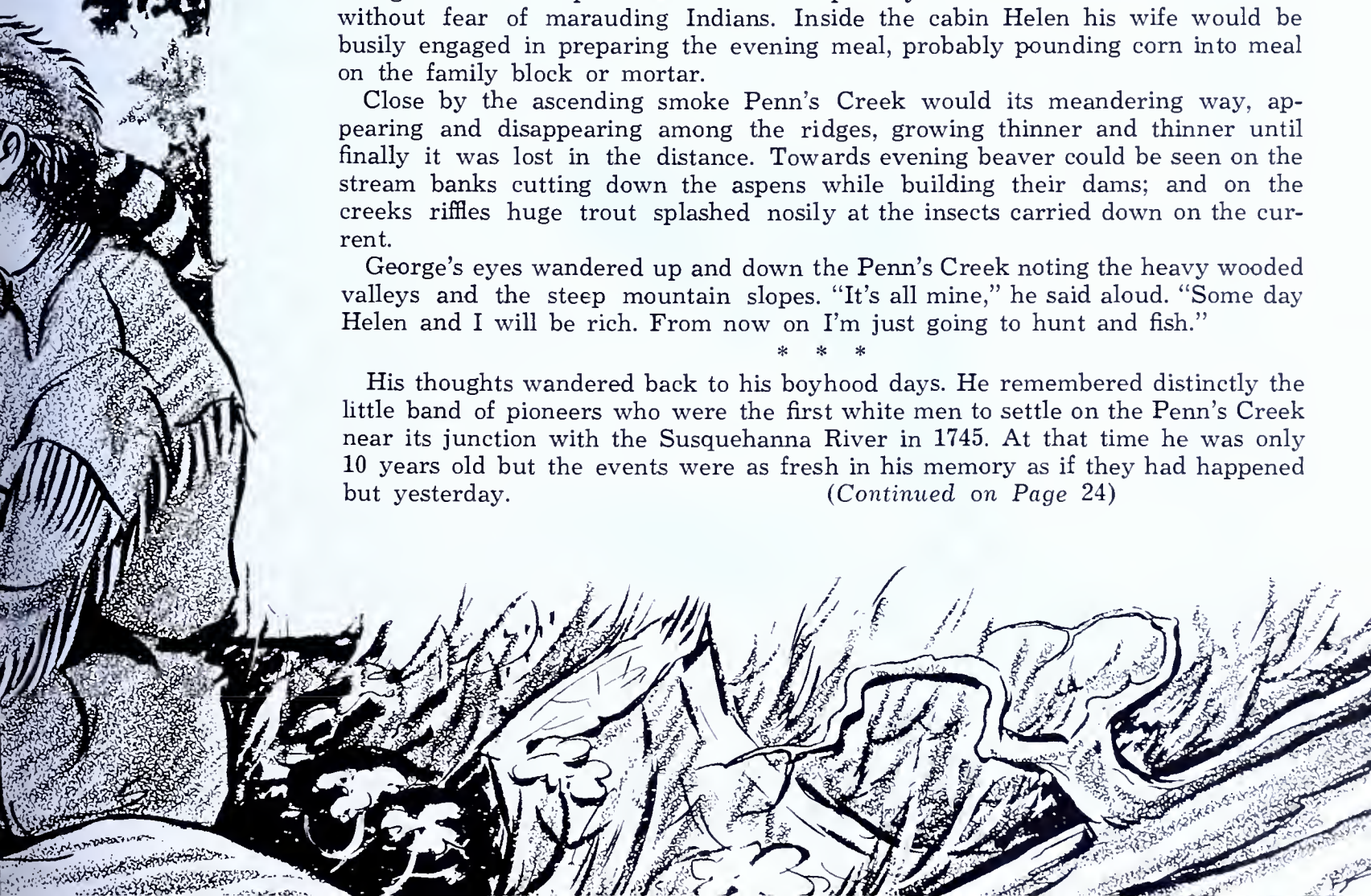
Close by the ascending smoke Penn's Creek would its meandering way, appearing and disappearing among the ridges, growing thinner and thinner until finally it was lost in the distance. Towards evening beaver could be seen on the stream banks cutting down the aspens while building their dams; and on the creeks riffles huge trout splashed nosily at the insects carried down on the current.

George's eyes wandered up and down the Penn's Creek noting the heavy wooded valleys and the steep mountain slopes. "It's all mine," he said aloud. "Some day Helen and I will be rich. From now on I'm just going to hunt and fish."

* * *

His thoughts wandered back to his boyhood days. He remembered distinctly the little band of pioneers who were the first white men to settle on the Penn's Creek near its junction with the Susquehanna River in 1745. At that time he was only 10 years old but the events were as fresh in his memory as if they had happened but yesterday.

(Continued on Page 24)



PROSPECTING

for trout

By
ALBERT
G.
SHIMMEL

INCLUDED in the make-up of most Americans is a large portion of heaven which for want of a better word the psychologist has called curiosity. This legacy was probably handed down from our pioneer ancestry and accounts for the great numbers of our people who habitually seek the hardships of primitive areas and sports as an antidote for the strain of modern high pressure civilization. A goodly number of this total are Anglers. Many of them are by necessity urban dwellers whose contact with nature is strictly limited to week-ends or short vacation periods. These individuals are at a disadvantage in the practice of the craft of the angler when compared to the rural native who can choose a time when conditions are right and who knows a stream or a section of it as well as he knows his own backyard.

When the clanging call of migrating geese comes to us from north-bound flocks the urge to leave the beaten path and plunge into the unknown is almost irresistible. To many it may mean nothing more than a longing to be out-of-doors even along the tried and proven waters, to others it means a search for new and better streams. To a few pioneer souls it means a con-

tinual search with the stream of dreams just over the mountain.

Many of these water-ways contain trout in sufficient quantities to satisfy any angler yet prove to be a disappointment until one discovers their secret, which many of them yield only to one who is willing to spend the time and energy necessary to make certain the most productive method of angling, and possibly just as important as any other factor, is the portion of the water and the time of day.

A certain medium sized mountain stream near home is an example of a number of these factors. The water is cold and the stream is spring-fed throughout its entire length. Its waters are slow to respond to the warming influence of the sun therefore the brown trout that form its main population are very sluggish and unresponsive during the early portions of the season. Native brook trout are fairly plentiful and form the bulk of the catch in early season and up to and including the month of May. By June the waters are crystal clear and, according to the resident anglers, depleted of fish except for a few adolescents who are shy from being pricked with the steel. To fish this stream during the day is a waste of time and energy. Every evening during the months of June and July from sundown until dark the browns respond to dry flies in a manner that will give any skillful angler a couple of hours of satisfying sport.

The trout are fast hard fighters and are so perfect in coloration that it is a pleasure to look at them. This same stream will in early May occasionally produce a good days sport with wet fly or nymphs but cannot be relied upon. The fish for this method average much smaller than the later catches on the dry fly. Incidentally the record fish for this stream was a nine-pound rainbow. It has also produced a number of browns of weights up to four pounds.

The trout also respond to minnows in this stream but streamer flies of any description are a rank failure except on very rare occasions when the stream is slightly colored.

In exploring new waters there are certain rules that will guide us in our quest for sport. To be



habitable, fish waters must be free of contamination, furnish abundant food and suitable hiding or resting places. The temperature must not fall below, or rise above a certain set range if fish are to survive.

Another mountain stream of my acquaintance contains thousands of native trout in its upper waters. These range in size from mere fry to big headed dwarf bodied trout of six or seven inches. It would be an easy task to take hundreds per day but a limit catch of 8 legal trout is an exception rather than the rule. Each year I visited it and spent a day with those ravenous trout. Reports of catches of nice trout from that stream came from a few native anglers who live near the mouth of the stream.

After years of disappointment I set out one morning before dawn to trace the stream down to its junction with a larger stream. Surely here would be some trout that would furnish at least a minimum of sport. My topographic map showed a line distance of about four miles but I confess that it was near noon when I finally emerged from the rough tangle of the mountain gorges. In order to get back to camp by dark I must immediately turn about and work back over my path. Replacing the wet flies with which I had taken an occasional small native on my way down stream, with a No. 16 Badger Spider I fished the first pool without results.

A bit of broken pocket water above attracted my attention and as the Spider rode jauntily between two protruding boulders it simply disappeared. It was not necessary to set the hook in the fourteen inch brown that went wild from the restraint of the line. From then on it was pick and choose from each bit of fast water. So fascinating was the sport that I fumbled the last two miles of the trail back to camp in total darkness and received a thorough dressing down from my camp mates who had expected me to arrive some five hours before.

The pools produced an occasional native trout if fished between dawn and sun rise and again in the evening but the finest sport was with the browns in fast water

and during the brightest hours of the day. This daylight feeding of browns was contrary to everything I had learned about them. A stream is sometimes a law unto itself!

Perhaps the most disappointing streams, especially to the trout fisherman, are the ones that approach the size of rivers. These produce record fish year after year and draw anglers from far and near yet the average results for hours spent on the stream are discouragingly low. There are locations on these streams that can be depended upon to produce results providing a reasonable amount of angling skill is used. I refer to the place where a smaller stream joins the larger. Whether or not it is the cooler water or more abundant food supply I am not prepared to decide, but these locations rarely fail to produce. I remember any number of experiences where such a location turned a very mediocre day into one that could be remembered as better than average.

The first occasion was an early season expedition with four adult anglers of experience and one lad of about twelve years. Our destination—a large stream in the north central part of the state. Early freshets had barely subsided and the wading was both difficult and dangerous. Anglers were plentiful and catches were few. After hours of fruitless effort our party decided to move on upstream. A check showed the youngest member of the party missing. With some anxiety we began our search and finally located him perched on a protruding boulder mid-stream but directly across from a small feeder brook. A nice rainbow danced and tail walked below and our small companion, confined as he was to the rounded top of the boulder, seemed busy as the proverbial paper hanger. When he finally persuaded the trout to submit to the net he volunteered the information that a round half dozen already reposed in his creel. He directed me to a sand bar on the upstream side of his boulder and very carefully I worked my way down to him. With deep water on three sides of his perch he had been angling in the eddies that caught and held food from both

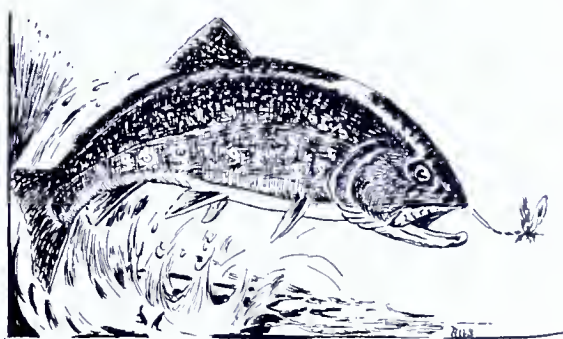
the main stream and its tributary. Three other locations that were similar yielded all the sport we wished while other anglers enjoyed very poor results.

In late season when the waters warm considerably trout and other fish seek the mouths of the cooler brooks and congregate in numbers. Early morning and late evening are the magic times when the sport is almost too easy. A tiny streamer fly with a body of silver fished through such a location at dawn will stir sufficient excitement to make the pre-dawn rising worth the while. The same location at evening when the Cinnamon Caddies are hatching will cause the trout to forget their caution and strike with the abandon of starved fingerlings. The lure is any large bodied brown fly, size 8 or 10. Preferably one that rides low in the water.

Another place to look for fish when waters approach maximum temperatures is the broken pocket water where the water is more or less rough and oxygen is pounded into it. I remember a hundred-yard strip of water that I worked several times during the day without results and found one warm evening when the Duns were hatching, the place literally alive with trout. A friend just beginning his career as an angler was my companion and the sight of so many working fish caused his actions to be somewhat erratic.

It was as chronic a case of trout fever as I have ever seen. Far be it from me to condemn any man for such an emotional upset. When the time comes that the sight of actively feeding fish does not cause an increase in my pulse rate then I shall be ready to hang up my rod and call it quits.

Gold and trout have one thing in common. They are where you find them.





HIS MAJESTY, the gamecock, wearing an elegant cape of blue dun feathers a delight to the eye of an experienced fly tyer.

How to

GROW

a

Blue Dun

Variant

S EVERAL years ago we added a third dimension to our fishing and fly tying. We started raising our own hackle.

We wanted blue dun, of course. Up until we were growing out our own birds we never had enough of this dusty, sooty feather color to satisfy tying needs—never had the right size feathers, or just the shade

we wanted, or hackle quality that'd float a hook over a ruffle.

We get the duns now; we get the colors and the quality. We also get all the other useful fly-tying colors from the same flock that produces the duns. We get red, furnace, badger, ginger, honey, black, white, cream—about anything you can name.

Take the crop last year. We raised twenty-eight chicks. Half were cocks, half were hens. Of the cocks, four had dun necks. Six were some shade of red; i.e., all the way from honey to furnace. Two were black, and two white.

There's another angle that shouldn't be overlooked in raising hackle chickens, especially today, and that's eggs and meat. A flock of a dozen hens easily produces all the eggs a family can use. And surplus birds are always welcome breast up on the table.

This leaves just one more by-product of raising chickens for hackle, and that is the pleasure and satisfaction in raising them. Ours are a strain of gamecock. The cocks are proud and graceful. The hens, especially when they have broods of chicks, add animation and color to the lawn. We enjoy having them around.

Perhaps we can pass on a few things we've picked up about raising chickens for hackle, in case you want to try your hand at growing out a few good necks.

In breeding for blue it helps to know a little about color inheritance in chickens. This gets into genetics and is a little technical. I'll make a stab at a few of the salient points.

So far we've been doing a lot of talking about blue, and now we have to say there's no blue in a blue dun feather. There's no blue pigment in any chicken feather, none at all. Only three pigments have been found in chicken plumage, far as we know. These are a yellowish or carotinoid pigment, a black or melanin pigment, and a brown melanin pigment. Combinations of these pigments, the shape of the pigment grains, how heavily the grains are deposited in the feathers, and how they are arranged are responsible for all of the many and varied colors in chickens. There's also white with its complete absence of pigment to add more variation. And there's still another source of what seems like color. The feather barbs are triangular and their horny structure reflects light. This means you get the various rainbow hues re-

flected from feathers, depending on which way the light's coming and how much. In other words, feathers are iridescent.

We've just said a blue dun feather isn't blue. Then what color is it? Basically it's an imperfect black feather that looks somewhat blue. The color grains in this dun feather are scattered. They're not dense enough to make the feather look black. So it looks off black, or what we fishermen call blue.

The above explanation of blue is somewhat over-simplified. Actually a good blue dun feather for fishing purposes carries a bit of the yellow pigment, or a bit of the brown pigment, or both. There are a lot of books that give the basic principles of genetics and color inheritance, if you'd like to get into it. A favorite of ours is *Poultry Breeding*, by M. A. Jull.

The first step, then, in getting "blue" in hackle is the crossing of white and black chickens. And since you also want a bit of the yellow and brown pigments, a chicken carrying these pigments (red or buff) is tossed in to spice up the mixture. Your hackle-producing flock, as you see, is a mixed flock. You first marry black and white, and then you marry the offspring from this black and white cross to a red cock.

From the foregoing, starting a flock of hackle producers seems reasonably simple. In actual practice, though, there's a slight complication, for nature added a twist which the geneticists call dominant and recessive. This means that if you mate a dominant with a recessive all the offspring are the same color as the dominant parent. Some black chickens are dominant, some are recessive. Some white chickens are dominant, some are recessive. It's quite a mess.

And what it means is that you must try around; i.e., change birds until you find the blacks and whites which when mated together give you that essential scattering of black pigment for the basic "blue." After you have it you're ready to introduce the red cock for one breeding season. Then you discard all the original birds and use a cock and pullets from their offspring for your future matings. Your breeding stock from which

the feathers will come is now established.

I hope we haven't scared you off with this dip into technicalities. I hope it may help perhaps to point out three things. First, explain why "dun" feathers come from a mixed flock of birds, and not from pure breeds or strains. Second, give some idea why "blue" necks are scarce and not produced in quantity for sale. And, third, show that the very thing which makes them scarce also makes producing them very much worth the trouble. For this tricky inheritance of "blue" makes raising your own hackle something extra special. It has the ramifications and absorbing interest essential to a good hobby. Also you're supplying yourself with a lot of rare and fine feathers.

The foregoing outlines the step-by-step process of establishing a flock that will produce blue dun and other feather colors, starting from scratch. In practice there's a shortcut that avoids the tricky and time-consuming first step, i.e., the mating of different black and white birds until you strike "blue."

For purposes of discussion, let's say you want to raise a strain of gamecocks for hackle. The first move is to scout around for a flock already producing "blue" birds. This shouldn't be too difficult—game fowl breeders often cross the various game strains. They get blacks and whites together and inevitably produce "blue." One way to get in touch with them is through the cocker magazines. Several are published here in the U. S. There're *Grit & Steel*, Gaffney, South Carolina, and *The Gamecock*, Hartford, Arkansas, to name a couple.

Game birds are offered for sale in these publications. Inquiries among the different breeders who advertise their birds should turn up the chickens you're looking for. Once you've secured the "blue" birds, you may find you want to add the yellow and brown pigments. This is where a red or buff cock comes in—mate him to the "blues" for a season.

If you prefer to develop a hackle flock from ordinary barnyard fowl, the preliminaries are quite simple. There's a barnyard breed known as Blue Andalusian. Black and

white birds were nicked somewhere in their past to get the "blue." Blue Andalusians are advertised for sale in the various poultry magazines. Mate a few of the "blue" hens to a Brown Leghorn or Rhode Island Red rooster and you are developing the essential mixture for "blue" necks, and other colors as well. To improve the feathers for fly tying, mate the hens to a red gamecock rather than to the Leghorn or Rhode Island Red.

The "blue" was already there in the birds we used to start our own flock. These birds came from a game strain raised especially for hackle. They go quite a way back in fishing history. I'll tell you a little of their background, if you're interested. It particularly concerns three men here in America and several in the British Isles.

Let's start with a man named Preston Jennings. Jennings is a perfectionist with his fishing and fly tying. He has pried deeply into anything and everything concerned with fly fishing. He is a methodical student of stream life and knows a great deal about Mayflies (probably you have read his *A Book of Trout Flies*). He is one of the pioneers in developing flies which more nearly represent the Mayfly hatches.

Jennings did a lot of inquiring and letter writing in the course of collecting his knowledge of what goes on in and around streams. Some of his correspondence was with stellar fisherman in England.

Jennings wanted badly to find birds which would produce blue dun feathers like some he had been able to get from England. From English fishermen he learned about a strain of birds that had been bred for their hackle feathers nearly a hundred years. This strain had been developed from the Old English Blue Game.

Col. Thomas Hughes, in the north of England, is credited with starting this hackle strain and bred them for that purpose for more than sixty years. Captain John D. D. Evans and Mr. John Henderson, Breconshire, Wales, are among those who perpetuated the breeding of these birds.

Jennings finally got in touch

(Turn to Page 27)

Notes and Memos



The secretary's secretary.

Jumpin' Jimmy

During the bitter, cold, winter days one would expect to find bullfrogs lying dormant on the bottom of an ice-covered pond. This is usually true, but it is not so with "Jumpin' Jimmy," the pet frog at Fisheries Research Laboratory in Bellefonte. Jimmy was a little late for his winters rest, so to prevent him from freezing he was brought into the aquarium room and given a tank of his own and plenty to eat. Apparently J. J. didn't like the confines and loneliness of the tank, so he promptly jumped over the 17-inch side. Since that time he has been on his own. Each evening he spends exploring the corners of the Chief Fish Cultur-

ist's office. When morning comes, he greets the secretaries as they arrive in their office; spends a little time viewing the work on their desks with a cynical eye; and then with his familiar "plop-plop" he hastens down the hall to the aquarium room. There he takes up his day-time abode in a drainage basin until the hustle and bustle of daytime activity passes. Then he again takes his nightly trek.

In an office in an industrial plant this would be unusual, but at the Bellefonte Research Laboratory where all living animals are considered part of the scheme of things, it is considered commonplace.

Ready Market for Smoked Lampreys

(Taken from "The Fisherman," Vol. 19, No. 5, Fall Issue, 1951)

Toronto fish consumers, particularly residents of European descent and especially those descendant from families of the Baltic states, are fond of cured and smoked lampreys which they consider to be delicious as *hors d'oeuvre*, somewhat resembling an anchovie in flavor. A processor of cured and smoked fish products in the Ontario city has already marketed between 8,000 and 10,000 cured and smoked sea lampreys on the Toronto market alone and now intends to export them.

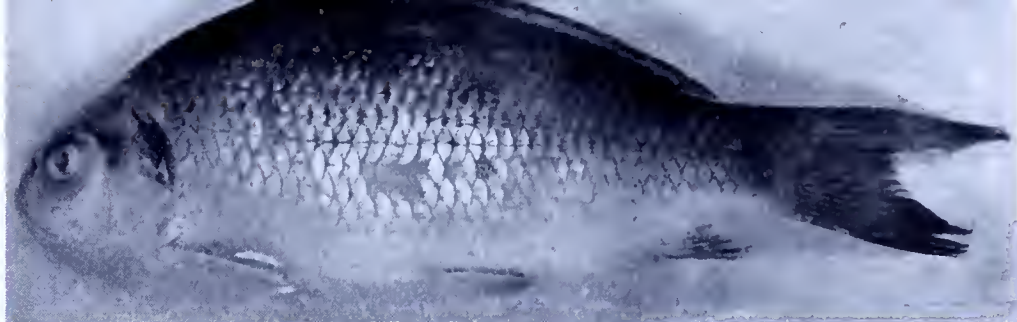
It all began two years ago when he obtained sea lampreys in numbers from the Ontario Lands and Forests Department. The creatures were taken from weirs on streams of the North Channel, Lake Huron, and Lake Superior, where they were caught on their migration upstream to spawn.

He prepared the lampreys by utilizing the curing and smoking process.

SUSIE IS DEAD!

The hatchery men at the Bellefonte State Fish Hatchery have a fish story to tell, but they're afraid to mention it. The story of old Susie told at this time of year might make other "whoppers" look like "whimpers." Nevertheless, the fish culturists at the hatchery have released the figures after Susie, a brood brown trout, "cashed in her scales." The old girl had a figure which would reach from end to end in a 31-inch creel providing the creel was over 7 inches wide. Her twelve pounds of weight included 41 ounces of spawn, or approximately 8,250 individual eggs.

Grandmother Susie is gone, but her thousands of offspring will continue to provide fishing for many anglers in the state.



Unusual Fish Species Recorded in Snyder County

During the late fall of 1951, Warden Kenneth G. Corey received word from a fisherman concerning the presence of an unusual fish species in the P. P. & L. Power Dam on Middle Creek, tributary to Penn's Creek, Snyder County.

Although fishermen were unable to catch these fish by hook and line, specimens which had been trapped in the ice were brought to Mr. Corey to be identified. This fish was not familiar to him, so Mr. Corey brought it to the Fisheries Research Laboratory where it was identified as the river quillback (*Carpiodes cyprinus*). This record is valuable because it is a new one for this species in this part of the state.

Bellefonte Research Laboratory Receives Rare Species of Sturgeon

Hatchery Superintendent, John Wopart, of the State Fish Hatchery at Torresdale, Philadelphia, Pennsylvania, recently forwarded to the Bellefonte Research Laboratory a rare species of sturgeon. Fishery technicians at the laboratory identified it as a shortnose sturgeon (*Acipenser brevirostris*). Because of the rarity of the specimen, it was forwarded to Dr. Edward Raney at Cornell University who confirmed the identification.

This specimen was taken in the hatchery fyke nets in the Delaware River near Torresdale. Previously, Mr. Wopart had taken single specimens in the spring of the year. This year none was obtained in the spring, but two were caught this fall. There seems to be no explanation why the sturgeons were taken at a different season this year.

Needless to say, the Fish Commission biologists were pleased with Hatchery Superintendent Wopart's contribution to their extensive collection of Pennsylvania fishes.

Shortnose sturgeon

(*Acipenser brevirostris*).

Fisherman's Paradise Regulations

RULES AND REGULATIONS—SPRING CREEK PROJECT—SEASON 1952

1. **OPEN SEASON**—May 16th to July 19th, both dates inclusive.
2. **OPEN**—from 8:00 A.M. to 8:00 P.M. (Eastern Standard Time) or until Klaxon is sounded.
3. **ALL ANGLERS MUST PERSONALLY REGISTER BEFORE FISHING AND PERSONALLY CHECK OUT AND RETURN IDENTIFICATION BUTTON BEFORE LEAVING PROJECT. NO SUNDAY FISHING.**
4. **FISH IN THE POSSESSION OF ANGLER MUST BE DISPLAYED AND CHECKED AT REGISTRATION BOOTH WHEN CHECKING INTO PROJECT. FISH NOT SO REGISTERED WILL BE CONSIDERED AS HAVING BEEN CAUGHT ON THE PROJECT.**
5. **ANGLERS MUST PARK AUTOMOBILES BEFORE CHECKING IN AND MUST CHECK OUT BEFORE REMOVING AUTOMOBILES FROM PARKING LOT.**
6. **DAILY LIMIT**—Only **ONE FISH** may be killed. The Angler must stop fishing after **ONE FISH HAS BEEN KILLED.**
7. Only artificial lures of hair or feather construction with barbless hooks or regular hooks with the barbs removed may be used. No spinners or swivels permitted.
8. Fishing with, or possession of, any live bait, angle worms, meat, liver, or any other bait, is a violation of the rules and regulations.
9. **SIZE LIMIT**—All fish caught from large stream under 10 inches in length and on ladies stream under 7 inches in length must be carefully returned to the water.
10. All anglers holding a Pennsylvania Fishing License will be permitted to fish five days during the season.
11. The dressing or cleaning of fish on the property is prohibited as all fish must be weighed when checking out.
12. **POSITIVELY NO WADING**—in the stream for any purpose permitted.
13. Sinkers or lures not exceeding the weight of 2BB Shot are permitted. No casting or spinning outfits permitted.
14. Feeding fish **PROHIBITED** except on Sunday.
15. Assisting in hooking or landing fish prohibited. All foul hooked fish must be carefully returned to the stream.
16. Violation of the rules and regulations will be subject to a fine of Twenty Dollars (\$20.00), revocation of your fishing privilege on the project for the balance of the season, and revocation of your fishing license.

If you like this project you can help the sportsmen of the state by obeying these rules and reporting any infraction to the officers.

Section 251 of the Act of May 2, 1925, as amended, provides the Pennsylvania Fish Commission with authority to promulgate such rules and regulations for the angling, catching or removal of fish in or from any waters of this Commonwealth as may be deemed necessary. Penalty for violation—Twenty Dollars (\$20.00) and in addition thereto may be fined Ten Dollars (\$10.00) for each fish caught, taken or had in possession, contrary to these rules and regulations.



He remembered the long canoe ride up the Susquehanna River; the shouting and laughing of the men, women and children; the numerous camping spots; the friendly Indians; the spearing of the eels at night under the glare of a pine splinter torch; the building of the log cabins on the banks of the Penn's Creek; the girdling of the trees assuring them title to the land; and above all the countless hours of work spent in cutting down the trees and clearing the land for cultivation. But with all the hard work, everyone was happy.

Then in 1755 tragedy struck. The hitherto friendly Indians excited by the propaganda of the French and the encroachment of the English, descended on the little group of pioneers and murdered all, that is, all except George who was then out hunting and Helen his sweetheart, the girl who later became his wife.

His thoughts did not like to dwell on this phase of his early youth. He dully remembered his return from the hunting trip; the smoldering cabins: the scalped men, women and children lying about; the finding of his sister and mother, and then of his father whose hands still tightly clutched the broken off stock of his rifle—mute evidence of the terrific struggle he had put up in defense of his family. Nearby he discovered Helen, scalped but still breathing—the only survivor of the ghastly tragedy. He remembered picking her up; hiding out in the woods; dressing her wounds; trying to still her raving delirium; and then under cover of darkness, the long canoe ride down the Susquehanna River to Harris' Ferry (now Harrisburg).

Miraculously Helen survived. George placed her in the care of motherly Mrs. Harris and then returned with a party of 45 under the command of her husband John to the scene of the massacre. That little band was ambushed by Indians and lost about half their number.

The terror and consternation produced by the Indian uprising is better imagined than described.

Settlers began to flee the country leaving behind newly sown fields; houses that had been occupied; barns filled with the fruits of a rich harvest—all these were abandoned to the mercy of the savages. The following year Fort Augusta was built at Shamokin (now Sunbury). George helped build the fort and on its completion returned to Harris' Ferry and married Helen.

Intrigued by the abundance of fish and game and the rich fertile valley farther up the Penn's Creek, George returned, erected a cabin and established title to some 400 acres near what is now known as Weikert.

The ensuing years filled with hardships and privations were not pleasant to contemplate. Time after time Indian uprisings caused George to carry Helen and their infant son Jim down the river, returning when things had quieted down, then only to repeat the same thing all over again. Helen had endured all this with the fortitude and bravery characteristic of the pioneers of the period.

Meanwhile George Snabble's name had become known far and wide all along the frontier. Lurid and colorful tales of his bravery and marksmanship were on everyone's tongue; and like the six Brady brothers, he had spread terror among the Indians who were continually harassing the whites. Many a family owed the return of their captured children to this hardy Ranger, who without allowing them a word of thanks vanished silently away in the night. He flanked the river covering the rafts and canoes containing the women and children during the Big Run-away in 1778; and served in all branches of the time—the Rangers, Militia and the Continentals. For this distinguished service he was granted a warrant of survey for 1000 additional acres. And now, at the close of the Revolutionary War and the Treaty of Fort Stanwix, he had again returned to the Penn's Creek to take up title to his land. He was now 50.

In the west the sun was sinking below the crest of Paddy Moun-

tain. George watched it disappear then picked up his rifle and started the descent into the valley below.

So heavily were the mountains timbered with white pine and hard woods that their tops all but obliterated the sky overhead. Beneath this dark green mantle it appeared as if twilight had settled over the land. Underfoot the ground was carpeted by a thick bed of pine needles broken only here and there by the scratchings of wild turkeys in their search for food. There was little underbrush and the only thing that obstructed his vision were the fallen hulks of rotting pines, most of which had been ripped apart by bears in their search for ants.

George proceeded slowly along allowing his eyes to become attenuated to the gloom. Squirrels barked noisily at this unexpected intruder on their domain. Far ahead an elk had stropped his horns on a young hickory tree, which divested of its bark stood white and gleaming in striking contrast with the dark forest. Near at hand the fresh scratching of wild turkeys laid bare the earth; and following these signs George soon came upon the flock near his cabin along the Penn's Creek. At the report of his rifle the turkeys took to flight leaving behind however a young hen struggling in her death throes. George picked up the bird, slung it over his shoulder then approaching his clearing gave forth the wild turkey gobble which announced his homecoming.

Young Jim Snabble came running across the field to meet his father.

"I'll carry the bird, Dad," he said breathlessly. "Gosh, you got him right in the head! Do you know what? Francis Dido is going to take me trout fishing tomorrow. He's in the cabin now talking with mother. Boy, are we going to have fun!"

"That's fine Jim, perhaps I may go along too," smiled George gazing down into the eager face of his 10-year-old son. "I haven't seen Francis for a long time, and I'm just in the mood for a long talk."

Across the mountain near Swift Run lived Francis Dido, a trapper, hunter and fisherman, who served

in the Second Pennsylvania Regiment. He wintered at Valley Forge, fought in the battle of Monmouth and knew George Washington personally. His nearest neighbors were the Snabbles who lived 12 miles away.

Helen met them at the doorway. Outside of her snowwhite hair there was nothing in the smiling motherly face to indicate the hardships and suffering she had undergone during the past 30 years. She combed her hair high at the front then twisted it into attractive braided coils on the top of her head which effectively concealed the ugly scalp wound inflicted by the Indians years before at the Penn's Creek massacre. She was very sensitive over being scalped and with the exception of her husband, there were few who had ever seen the three-inch livid circular scar that almost took her life.

"I'm glad you're home dear," she said. "We have company."

Francis Dido arose from his chair and grasped the outstretched hand of his neighbor. He was a small, thin, wiry man about five feet two inches tall, in sharp contrast to the six foot six inch giant before him.

"I've brought you a mess of fish, George," said Francis.

"Fine, let's see them. I understand that you are quite a fisherman."

Helen brought from the spring in the cellar a large earthen bowl containing the fish. They ranged in length from 12 to 18 inches and their size made George gasp.

"My, oh, my I never saw such big ones before. And what did you catch them on?"

"Flies," chuckled Francis. "That's the only way to take them. They're trout, but not quite like the trout of England.* These don't have scales, and they rarely leap above the water when hooked. Just the same they're fighters. You know I almost forget how the English trout look—it's been so long since I've seen any . . ."

"Let's show Dad the outfit you

caught 'em on," broke in Jim, dancing around in excitement.

"Alright son," agreed Francis good humoredly.

Outside propped up against the cabin wall was Francis' rod. It was a round two-handed affair weighing slightly over a pound and was made of hickory. Its length was 18 feet and it had three joints. Into the butt joint a spike was screwed to support it in the ground. The sections of the rod were joined together with a thread splice and were rarely taken down during the fishing season. The guides on the rod were of the flat type which lay down on the rod when not in use.

The reel was Francis' pride and joy. He had brought it along from England years before and the Snabbles had never seen anything quite like it. It was a small brass affair about two inches in diameter, a single multiplier, and its use permitted Francis to lengthen or shorten his line at will.

The line made by Francis was of horsehair, thick at the center then tapering to a fine point at the end. His flies were Red and Black Hackles, also home made.

That evening after a dinner of fried trout and wild turkey roasted in front of the huge fireplace, Francis made horsehair lines for both Jim and his father. Young Jim could not get enough of all this. He kept plying Francis with question after question, so many that Helen finally in desperation packed him off to bed.

Tossing about on his straw chaff tick young Jim had a hard time falling asleep. He kept thinking of the big trout he was going to catch in the morning. Outside, the waters of Penn's Creek lapped noisily over the riffles, and near at hand a whip-poor-will set up its shrill staccato clamor. Downstairs he could hear his parents and Francis talking about the war and the new settlers who were coming into the country.

"I'm telling you, George," he heard Francis say disgustedly, "this country is getting too civilized. Some new settlers have moved in over near the Swift war-rants and I hear more are coming. If this keeps up, I'm going to

move out west. Imagine having people living right on top of you—only three miles away."

"Well, Francis, I'm glad of it," said George, laughing.

"And I, too," chimed in Helen, "it's lonesome in this country and people are needed to settle it. Children should have company."

"Just the same, no good is going to come of it. You wait and see . . ."

* * *

The first grey streaks of dawn were appearing in the east as Francis, George and young Jim wended their way through the dripping forest to the Penn's Creek. A heavy fog lay over the land and the woods were alive with the chirping of birds and the stirrings of four-footed creatures. Rabbits scuttled across the trail and squirrels leaped here and there among the swaying branches overhead. In front of them a buck scrambled up and crashed wildly through the forest, then wheeled abruptly and snorted in alarm. Young Jim's hair stood on end at this sudden unexpected encounter.

Rounding a bend in the trail the waters of Penn's Creek came into view. On the bank an otter in its sleek wet glistening coat coasted down its slide, then disappeared beneath the water with an almost imperceptible splash.

"We'll have to wait a little while," said Francis, "that otter



"I don't care what you heard shootin' fish in a rain barrel ain't easy!"

* These trout were later identified in 1814 by Samuel L. Mitchill as being *S. fontinalis* or "New York trout." In the years to come they were known under a variety of names such as Brook trout, Speckled, Coasters, Native, Eastern, Squaretail, and Spruce or Hemlock trout.

has been fishing and the trout are scared."

Francis helped George and Jim cut their fishing rods from nearby young hickory saplings, then fastened on the horsehair lines and flies.

The sun showed forth pale and blurred and the heavy mist which had hung so low over the water was now beginning to rise. On a distant ridge a wild turkey let forth a long gobbling call which was immediately answered from all points of the compass.

"It's the flock I scattered last night," said George grinning. "They are now being called together. Let's start fishing."

Upstream near the head of the pool the water swirled violently around huge projecting rocks, then it settled down into a long foam-flecked riffle. Francis moved up near the rocks then slowly waded out into the current. Jim and his father settled down on the bank awaiting developments. Neither had fished with a fly before and both were eager to learn. As if from nowhere a hatch of mayflies appeared then started their amorous dance rising and falling over the water. Slightly below Francis a huge trout rose to the surface and started feeding on the flies carried down on the current. In a short time it was joined by many others. Rings were now appearing everywhere over the water and the trout were going mad.

Meanwhile Francis had not been idle. He had learned fly fishing and fly tying in the old country, and as his horsehair line went shooting out over the water, both Jim and his father realized they were watching an expert at the game. His flies settled down on the water as lightly as the proverbial thistledown and without imparting any motion to their progress, Francis allowed them to drift downstream on the current.

Suddenly there appeared a large swirl and Francis tightened up. He had hooked the big trout they had noticed feeding a few minutes before. Young Jim kept dancing around in excitement as Francis tried to keep his vibrating rod high up. For a few minutes the trout made long furious dashes here and there, then settled down to sulking on the stream bed. For a long time Francis tried to move it, then suddenly his line fell back on the water in loose sickening coils. The trout had torn off one of his precious fly hooks.

"Darn the luck," said Francis ruefully. "I don't mind losing that trout near as much as the fly hook. They're scarcer than hen's teeth in this country."

During the next half hour they took 15 large trout from the pool and the fish were still feeding. Almost every cast took a fish and quite often doubles were made. Young Jim took three ranging in length from 14 to 18 inches, and he was in the seventh heaven of delight. Francis and George feeling that almost enough trout were taken sat down on the bank and watched Jim fish.

"That boy is going to make a good fisherman," said Francis, "he takes to it like a duck to water."

"That he does," agreed George. "I can see that were going to have a hard time getting him to quit."

"Look!" said Francis pointing, "there's the big trout again feeding below Jim. I sure hope he catches it."

Jim too had seen the fish feeding and as his flies swung down with the current, he stood tense and waiting.

"If he hits," he thought, "I'm going to run him right up that gravel bar."

And the fish did hit. He took the Red Hackle with savage determination throwing spray in all directions

Jim let out a warhoop, threw

the rod over his shoulder then headed for the bank at terrific speed. He kept up this pace until about 50 yards from the water's edge, then turned and came running back. On the gravel bar, well back from the water's edge the huge trout thrashed about and Jim threw himself upon it.

It was a beautiful fish 28 inches long with large blood red spots that gleamed bright and iridescent in the sunlight. In the corner of its jaw was imbedded Francis Red Hackle fly that he had lost earlier in the day. Francis was delighted in having recovered his precious fly hook and praised Jim highly.

"I did think, though, that the Indians were after him the way he was running," twinkled Francis.

"Well, I got him anyways," retorted Jim blushing.

"That you did," agreed Francis, "and I'm glad of it."

And so ended Jims' first fly fishing trip on the Penn's Creek.

* * *

In the years to come Penn's Creek gained an enviable reputation as a trout fisherman's paradise. Under the tutoring of Francis, Jim developed into an expert fly fisher, a figure constantly seen on the stream banks.

Meanwhile settlers began to pour into this wild, rich and unfrequented country. Francis stood for it a long time, then feeling too hemmed in, eventually moved to Ohio as he had long threatened.

George Snabble prospered and in his later years constructed a tavern which became famous as a rendezvous for hunters, trappers and fishermen. Jim later took over the management and among his famous guests were Audubon the celebrated ornithologist, Frank Forester, the sporting writer and many others—but that is another story.

THE CADDIS FLIES

hatched larvae either drop into the water or are washed there by a rise in the water level.

Larvae and Pupae

The larvae, or young stage of

(Continued from Page 13)

caddis flies are found in all types of water, quiet or fast, and are much better known than the adults. The bodies of the larvae are well covered, with protective cases, except for the head and legs which

extend outside. However, all species do not construct these cases or houses. These cases vary in color from a deep gray to a brilliant orange and are constructed from all kinds of material, and are really beautiful. They draw these cases with them while feeding on

small animal life and vegetation. Some species feed on whatever is at hand, others eat plankton and insect larvae. The cases are all lined with silk, and often open at both ends and are covered with stones, sticks, and sand or small shells. Some even build little fish nets which strain out small particles of food. When full grown the larva make a cocoon in which it changes into a pupa. The adult structures develop within the pupa. The pupa later cuts its way out of the cocoon, swims to the surface, crawls out of the water and attaches itself to a stick, stone or other object. The adult then bursts the pupal skin and flies away. Mating takes place in a short period and eggs are laid in or near the water. If one watches closely you can see these little bundles of sticks, or masses of stones moving slowly about the pool. I have seen the bottom of the stream covered with thousands of these cases.

When a larva is disturbed it draws back into its case, and is safe. They are quite sensitive to noises and on many occasions I have stopped their travels by knocking two stones together under the water. Many minutes would pass before the bottom became alive again. The trout certainly have some way of recognizing that here is food, for I have taken many of them, and their stomachs were gorged with the larval cases.

The only means of locomotion is by crawling. (Cases are built from secretions of the salivary glands which adheres to material found in stream.) In many cases the larvae swim several days before starting construction of cases. In some species they start the case from the gelatinous egg mass from which they just emerged. Some larvae bore into twigs or enter small pieces of the stems of grasses. Some larvae can repair their dam-

aged cases by reversing themselves, others just build an extension in front. The larvae are both vegetarians and carnivorous.

The pupal stage lasts about two weeks or more and many overwinter in this stage. The highly developed mandibles of the pupae are a great aid in freeing the pupae which are very active, and here is a stage of the life history when nymph fishing is at its height. If one can match the nymph it is not difficult to take fish. Emergence of adults may take place in the day but the majority takes place at night, and at the water's surface or wholly out of the water. Adults emerge and shortly after the wings are filled with air. Some are very strong fliers, others fly but short distances, others cannot fly but run quite rapidly. Flight is mostly at night. The adult mouth parts are fitted for liquid food. Most species live from 30 to 60 days.)

GROW A BLUE DUN VARIANT

(From Page 21)

with Capt. Evans and soon two settings of eggs were on their way by boat to the U. S.

There's an amusing little sidelight in connection with these precious eggs. Jennings was ill when they arrived and couldn't pick them up. A customs official set one of the egg packets on a radiator and those chickens were baked in the shell then and there.

But a few of the eggs in the other setting did hatch and a flock was established from these.

Now let's bring in the second of the trio who helped naturalize these birds over here. He is Dr. W. B. Cadwalader, a neurologist of note, and for many years president of the Zoological Society of Philadelphia. Cadwalader, like Jennings, has an insatiable desire to get to the bottom of things and learn all there is to know. He, too, wanted better blue dun feathers. His search for them took him to England. He eventually came to Capt. Evans' door, and found Jennings had been there before him. So Dr. Cadwalader learned the chickens he was looking for were already in America. He went

to Jennings for the birds to start his flock.

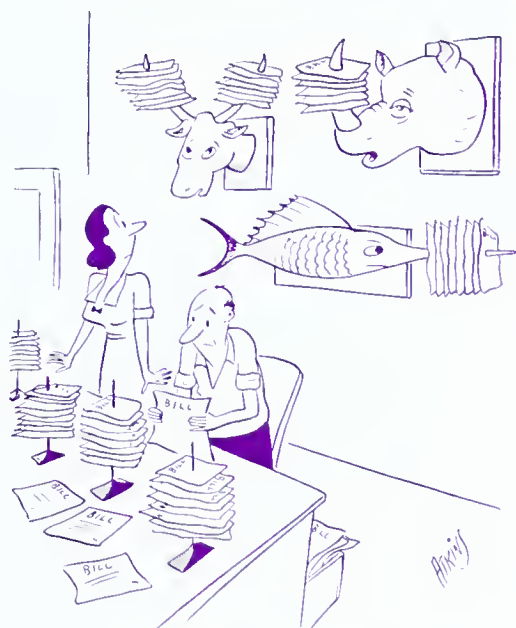
The third member is Willis K. Stauffer. Stauffer and Jennings fished together quite a bit. Jennings was having trouble raising the hackle birds and asked Stauffer to help out. Stauffer took over and with his good, earthy sense developed a flock of uniform, healthy birds, and still produces the very best of hackle.

The hackle strain of the Old English Blue Game has been here in America for about twenty-five years, but there are less than a hundred of the birds here today. As far as we know, there are only the three flocks. Other flocks have been started from time to time, but for one reason and another have petered out.

Those of us who raise these birds are biased in favor of their hackle. There are more fibers (barbs) extending out each way from the shaft of the feather. And the shaft itself is slender and pliable, so that it wraps neatly on the hook. The feather barbs have enough give so they don't break the surface tension of the water;

enough starch to keep the hook afloat.

This is a hop-skip-and-jump picture of raising birds for their hackle, but I hope it gives some of the bare essentials. The fine points are picked up as you go along. For instance, the flock must be kept in balance, so that it doesn't run too much to red (yellow and brown pigments), on the one hand, or too heavily to blue (black pigment), on the other. You'll want to keep dun cocks for breeding, for they produce beauti-



ful hackle for plucking, as well as fertilizing the eggs for hatching. Since your males are "blue," you keep a few red females in the flock to make sure you retain the lighter pigments. The remainder of your hens will be "blue" and black. Sometimes you find your necks are running too much to red; then you cut down on the number of red females. Or you are getting the necks too dark, and you build up on red females again.

A lot could be said on flock management, but common sense is the main point. Housing, feeding, and care are the three important fea-

tures of management. The flock doesn't need fancy housing. Something that gives protection on three sides and is open to the south is adequate. An old barn or woodshed will do fine. Even an old privy will provide shelter for a cock and a couple of hens.

Don't get into any nonsense on feeding. The commercial feed people—the concerns that produce feed for the flocks kept for eggs or meat—have worked out this feed business. They make balanced rations. Use a commercial feed and follow the manufacturer's direc-

tions. He'll tell you in his literature how to use his rations. And that's all you need to know about feed.

Care involves a little attention every day, rather than a lot at any one time. You feed regularly. You see that the birds have water. You provide them with a place to nest. Sanitation, too, comes under care. This means keeping things reasonably clean—the water fountains, the feed troughs, and the houses. Care is simple, pleasant routine, day by day, and a good diversion if you're doing time in an office.

BANNERS OF MAY

since they do not scratch the glass.

Quite far back in American history we learn that the Indians made a scarlet dye from the roots and used it in coloring bald eagle feathers and porcupine quills. The bark of the Dogwood has marked bitter and astringent properties which the Indians used as a remedy for malaria. The pioneers found that by steeping the bark in whiskey they could get relief from the "shakes" and the "ague." Perhaps one of the most interesting facts about the bark came about during the Civil War. The blockade of all Southern ports by the U. S. Navy caused a shortage of quinine, and the Dogwood bark was used like "Peruvian bark" by the Confederate doctors.

Judas tree is the older but more foreign name for the Redbud tree, being derived from its European

(Continued from Page 12)

cousins. The name Redbud was used in 1700 in North Carolina, and George Washington referred to the planting of Redbud trees at "Mt. Vernon." An old belief is that this is the tree on which Judas Iscariot hanged himself after his betrayal of Jesus. Its flowers, though formerly white, turned red either with shame or blood.

Inconspicuous though the Redbud may be in summer and winter, we realize with the coming of spring how very common it is. Its delicate leafless and thornless branches are covered with a mass of purplish-pink, pea-like blossoms. This unusual color, so abundant where little Redbud trees form thickets on the outskirts of a woodland, leads to a very general recognition among fishermen who go into the May woods.

John Lawson, in his "History of

North Carolina" published in 1708, speaks of salads made from the Redbud blossoms. In Mexico the flowers are still fried and eaten as a delicacy. Outside of these uses, the Redbud has no commercial value.

In midsummer the broad heart-shaped leaves of the Redbud cover and adorn the tree, concealing the dainty tapering pods. As fall and winter approach, these two trees, the Redbud and the Dogwood, again bring colorful beauty to the woods. The leaves of the Dogwood, still glossy and smooth, change to crimson and scarlet, while the cluster of berries which replaced the flowers become brighter still, until the birds have taken every one. The Redbud leaves, unmarred by insects or wind, change from green to yellow, and the pods become purple. Thus, these trees lend themselves well to any landscape seen by fishermen and all lovers of Nature.

MAY FLY ARISTOCRATS

(Continued from Page 11)

same length as the body. The overall color of the adult is a deep smoky brown, but the yellow legs and tail fibers tend to lighten the appearance to one of olive.

The nymph of the Hendrickson and Red Quill is called Prickle-Back. It is nearly one-half inch in length, essentially reddish brown in color but having paler dots. The tails are yellowish brown. The female adult is rightfully and cor-

rectly called the Hendrickson, while the male adult is the Red Quill. The Hendrickson and Red Quill are slightly less than one-half inch in length. Sometimes, the Red Quill (male) is better tied smaller than the Hendrickson (female). The Hendrickson is essentially brown with a reddish cast. The underparts of the abdomen are lighter than the upper parts of the insect. The occurrence of

yellow markings on the abdomen of the insect has a tendency to lighten the over-all appearance. The Red Quill is a brighter red than the Hendrickson. Tails of both are smoky gray in color.

Flies of the genus *Caenis* are small and generally light in color. The adults are about an eighth of an inch in length, usually pale yellowish white. There are three unusually long tail fibers.

There are many members in the genus *Baetis*. These flies are widely distributed in both eastern and

western United States. Many are essentially unidentified, and specific naturals are difficult to relate to the fly fisherman's flies. We do know that such well-known and accepted patterns as the Blue Quill, Blue Dun, Black Quill, July Dun, and August Dun are among the rather mysterious patterns that, in reality, represent the genus *Baetis*.

Undoubtedly, our adoption of common English pattern names has led to a great deal of confusion. For, often in this country, we have applied an English pattern name to an insect of an entirely different genus than theirs.

The English, for example, have used the name Pale Watery Dun in referring to a species of *Baetis*,

while we have adopted the same name but have applied it to an *Ephemerella*. By the same token, the English have bestowed the names Tup's Indispensable, Ginger Quill, and Little Marryat on the same natural fly in the genus *Baetis*, whereas we have transferred most of these names along with Pale Watery Dun to the genus *Ephemerella*. Actually, the name Ginger Quill is applied by us to the genus *Stenonema*. It is not a member of the *Baetidae* at all.

Many other examples could be cited of the confusion existing between American and English pattern names. It is doubtful whether we, as fishermen in America, will ever completely clarify all our pat-

tern names. However, during the years there has been an increasing interest in the adoption of American patterns in imitation of American insects. This would seem to be a wise course. It will necessitate the loss of some pattern names well-established in American angling, and, no doubt, it will bring about the introduction of other names for our new imitations.

It might be questionable whether the results would justify the trouble. But as we mature in the business of fly patterns in imitation of natural insects, there will be an ever increasing desire to investigate, to imitate, and to establish the identities of our own natural insects.

Ancient Fishes of Pennsylvania

(Continued from Page 9)

for sucking up bottom material and straining out food organisms such as algae, snails, insect larvae and vegetable matter.

Life History:

The adults, both marine and fresh water, spawn in the spring when they run up smaller rivers and streams. The female deposits a large number of eggs which adhere to sticks, weeds and other objects. The young feed on minute crustaceans, algae, and insect larvae until they attain the length of about six inches. The adults may reach a length of over seven feet and a weight of over 300 pounds. They are reported to live well over fifty years of age.

Distribution in Pennsylvania:

The marine species are found in the Delaware River basin. The fresh water species is found in Lake Erie.

KEEN BUSS, *Fishery Biologist*
Pennsylvania Fish Commission

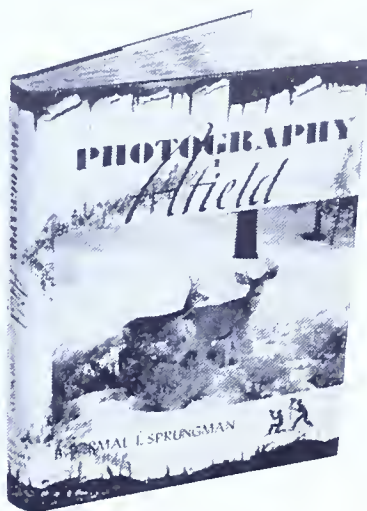
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What's New in Fishing Books



Only a photographer who has spent many hours afield and in the dark room can appreciate the tremendous labor Ormal I. Sprungman put into his new book, *Photography Afield* (The Stackpole Co., Harrisburg, Penna., \$7.50). The wealth of material and fine photographs throughout the 449 pages are beautifully presented. And, strangely, it does not require a knowledge of photographic techniques to understand what Mr. Sprungman is striving to do for the reader.

During the past decade a sportsman, be he angler or hunter, amateur naturalist or just outdoors in search of a good shot with a box camera, would hardly think of packing up his duffle on a trip afield unless a camera was near the top of the list of accessories. As a matter of fact, many anglers would just as leave be without a rod as without the implement that trips the shutter.

A wide range of photographic subjects are brought into focus in this volume, which, while it appears expensive for the average sportsman, everyone will get plenty for the money and more.

While there are quite a few books on the techniques of photography for the layman, *Photography Afield* encompasses what the title implies. It is a work which directly helps the outdoorsman with his picture problems and not just a jumble of treatises on the contrasty qualities of various photographic papers, lenses and the like.

Mr. Sprungman, throughout his book, implores the reader and amateur not to think of a camera as a complicated instrument with requirements of an infinity of the arts, but rather a companion, a little instrument that will record faithfully and well in the hands of every guy who knows his ABC's. This theme pounding away at the human side of photography serves to clear the brain of technicalities and allows free rein to the imagination in shutter clicking.

The reader is not led to believe he will have success with each and every exposure while being led through the various stages of stills, black and white to color, then on to movies if the purse will stand the strain.

But for the gent really bent on getting into graduate work there is plenty to peruse, as the entire field of photomicrophy is opened by the author including micro-flash techniques.

In these days of increased angling and hunting pressures, lower creel limits and smaller catches, the camera is rapidly coming into the conservation scheme. Many sportsmen are finding it more thrilling to photograph wildlife than to kill. *Photography Afield* will, we believe, for many years hold a top spot in the field of outdoor photography and recreation.

Dear Editor:

Many pleasant hours I have had reading the *ANGLER* that was sent me as a gift during the past year from a good friend. If at all possible I will never be without it. It is TOPS!

Yours for clean sports and good reading.

GEORGE C. DAILEY

Scranton, Pa.

Dear Editor:

Please renew my subscription to the *PENNSYLVANIA ANGLER*. I enjoy your magazine with the new cover, better pictures and stories plus a lot about the Fish Commission's work. This will commence my third year of reading enjoyment.

RILEY JOHNSON

Pittsburgh, Pa.

NEW CLUB OFFICERS FOR 1952

Sayre Sportsmen's Club

James Crowley of Sayre was elected president, succeeding John H. Ryan, who has been president the past two years. Francis Reagan was named vice-president, succeeding Miles L. Lewis. Verne A. Hicks and Andrew J. Zeller were re-elected secretary and treasurer, respectively.

Daniel Boone Rod & Gun Club

President, Harrison L. S. Deeter, 1055 N. 5th Street, Reading; vice-president, George G. Hafer, Stony Creek Mills; recording secretary, David S. LeVan, 1033 Friedensburg Road, Stony Creek Mills; financial secretary, Leon Leinbach, Esterly; treasurer, A. Reuben Kurtz, 1049 N. 10th Street, Reading; trustees, George Griesemer, Edgar Y. Levan and Park C. Boone.

Holmesburg Fish and Game Protective Assn., Inc.

President, Bill Davis; vice-president, Elwood Kline; second vice-president, Sam Boswell; treasurer, Ed Vache; secretary, Charles Wiley; directors, Milt MacBain, Howard George, Geo. Oberholtzer, John Metzger, Jim MacMillan.

Perkiomen Valley Sportsmen's Association

Russell Cassel of Limerick was elected president of the Perkiomen Valley Sportsmen's Association at the annual reorganization meeting of the club.

Other officers elected were: Harry Miller, Norristown, vice-president; LeRoy Burris, Norristown, recording secretary, and Mrs. Burris as financial secretary; Robert D. Hess, Collegeville, treasurer; and Rudolph Fruend, Yerkess, Horace Place, Eagleville, and J. Howard Fenstermacher, Collegeville, directors. Frank Clamer, Collegeville, retiring president, automatically becomes a director.

Dear Sir:

Enclosed is a dollar for a 2-year subscription to the *PENNSYLVANIA ANGLER*. I never read a sports magazine but since we have been getting yours, I never miss a thing in your interesting magazine. In fact, I read it from cover to cover. My husband is a great fisherman and wanted me to take up fishing too but I just couldn't get interested. But since I read your publication I'm getting a desire to start fishing now.

MRS. ED. STACHOWIAK

Nanticoke, Pa.



Is It A 1951 Record?

Dear Sir:

I would appreciate information concerning the largest trout reported caught in open waters in Pennsylvania during the 1951 season.

In May 1951 I caught a brown trout, 10 pounds, 14 ounces, 29½ inches long and 17¼ in girth. This fish was taken with a live minnow at Big Spring, Newville, Pa. Warden George James measured the fish and it has been entered in several big fish contests in Pennsylvania and nationally.

Any information you can furnish will be greatly appreciated.

WILLIAM E. HILLBUSH
Shippensburg, Pa.

Because we do not receive information on all large trout caught in the state our records are incomplete. However those that were reported stack up like this:

William Hillbush, Shippensburg, Pa.—10-lb., 14 oz., 29½-inch brown

Dale Smith, Benton, Pa.—9½-lb., 29-inch brown

Ted Weeks, Corry, Pa.—7-lb., 28-inch brown

Norman Shawley, E. Hickory, Pa.—7-lb., 26¼-inch brown

Bernard Unger, Erie, Pa.—6½-lb., 25-inch brown

We have large numbers of trout reported under the 25-inch class. If anyone can offer authentic proof for topping Mr. Hillbush's catch please send information to the editor. The fish must have been caught in Pennsylvania waters during the open season of 1951.

Dear Sir:

The fever is here and fever causes nightmares and fishermen and flytyers have been known to tie up some awful nightmares. Here is one of my bad dreams but this one has been a producer of trout over most Pennsylvania

waters. I call it "Chest Creeker" because I never saw this fly on the market anywhere.

Here are the materials used: Tail—3 strands ringneck feather; body—raffia grass, brown thread ribbing; hackle—dark brown; wings—wood duck or slate gray. I have used a gray and brown hackle without a wing for a dry with good results.

MEL YAHNER

Patton, Pa.

We are sorry we could not reproduce this fly for presentation but anybody seeking more information on it should write to Mel Yahner, Box 123, Patton, Pa.

Dear Editor:

Am enclosing my "buck" for another two years of good reading. I've been a subscriber for quite a few years and have enjoyed every issue. My gripes are few as far as the ANGLER is concerned, I read every article in it. I would like to see more articles by Joe Bates, Jr., especially about using spinning equipment for trout fishing. I have been using a spinning outfit for almost 10 years and like it very much.

I find that you can use streamers and bucktails as well as other artificial baits for trout and really connect . . . The only time I neglect the "Spin" outfit is when the trout are hitting dries but even then I generally take it along just in case.

I'm glad to see the limit on trout down to 8 and for my part would like to see it even lower, but of course I'm just one fisherman in thousands. I really believe most fisherman on our streams today are out for the sport and not the fish.

I've got a few words to say about our Warden, Julius Ahrens. I've helped stock fish with him many times and find he is every inch a gentleman. We need more fellows like him for the good of angling.

Keep the Angler coming and you will hear no more gripes from me.

GLENN K. WHITLING
Franklin, Pa.

To the Editor:

Here's one to recall Pete Mosier's letter in your December issue relative to a family of otters.

Back in the spring of 1895 my friend Nick and I went sucker fishing along French Creek about a half mile below the village of Utica. While we were baiting our hooks, Nick, who was barefoot, suddenly dropped his pole and scrambled through the weeds to a bare spot a few feet away.

Grabbing up a couple of stones he yelled, "Hey! Look out for that snake!" I took a quick look to where his gesture indicated in time to see "that snake" break up into seven or eight pieces at the



Photo Left

Walter F. Wheellock, Cambridge Springs, Pa., shown with his 14-lb., 4-oz., 40-inch muskie taken in French Creek.



Photo Right

Robert Bellus, Pittsburgh, Pa. (left), with his muskie, 31-pounds, 48-inches, caught at Edinboro last August.



Frank Valencic, Jr., Brackenridge, Pa., caught this 22-lb., 6-oz., 44-inch fish in Tionesta creek. It had a 12½-inch bass in its stomach.

sound of his voice, scatter all over the creek bank.

It proved to be a weasel with your young family, out for a ramble in single file and we spent half an hour trying to exterminate them with sticks and stones. There appeared to be a weasel under every weed in the immediate vicinity, but there just wasn't any where our sticks and stones landed . . . those little fellows were lightning-fast dodgers.

C. M. CAMPBELL

Utica, Pa.

Dear Sir:

Congratulations on the new look of the PENNSYLVANIA ANGLER, also on the fine appearance of the new license button. Out of 26 from the year 1927 I have mounted there aren't two alike and none as nice looking as '52.

Enclosed is my check for two years to the ANGLER and best wishes for good fishing to all in 1952.

WILLIAM A. S. McCANDLESS
Lemoyne, Pa.

James S. Bunnell, East Stroudsburg, Pa. sent in a snapshot of 12-year-old Mary Rowland of

Scranton, Pa., with an eel she caught at the Lake Meadow Fishing club in East Stroudsburg. The eel was almost as long as Mary is high and we regret the photo turned out to be unsuitable for reproduction here.

Dear Sir:

Enclosed is \$1.00 to continue my subscription to the PENNSYLVANIA ANGLER. Never have I enjoyed a magazine more than I have the ANGLER over the past four years. I'd hate to miss a single issue and I hope the Pennsylvania Fish Commission will keep up the superb job of publishing this wonderful magazine.

MILTON FERGUSON

State College, Pa.

We received a letter from Mr. J. C. Ford of Catawissa, Pa. sending in the photo of his good friend Raymond Leiby, of Elysburg, Pa. and his grandson Hunter with a 21-inch smallmouth taken in Sullivan county last season.

The cock is crowing,
The stream is flowing,
The small birds twitter,
The lake doth glitter,
The green field sleeps in the sun;
The oldest and youngest
Are at work with the strongest;
The cattle are grazing
Their heads never raising
There are forty feeding like one.
Like an army defeated
The snow hath retreated,
And now doth fare ill
On the top of the bare hill;
The plough-boy is whooping,
anon, anon!
There's joy on the mountains,
There's life in the fountains;
Small clouds are sailing,
Blue sky prevailing,
The rain is over and gone.

WILLIAM WORDSWORTH.

More '51 Catches —



Successful anglerette, Mrs. Steve Haverlak, Nanticoke, Pa. took this 5-lb. largemouth from Lake Nuangola. An ardent angler, Mrs. Haverlak likes to snag 'em on artificial lures.



Bruno Maryani, Clarks Summit, Pa., with 7 1/2-lb., 28 1/2-inch walleye.

The older generation thought nothing of getting up at five o'clock in the morning. The younger generation doesn't think much of it either.



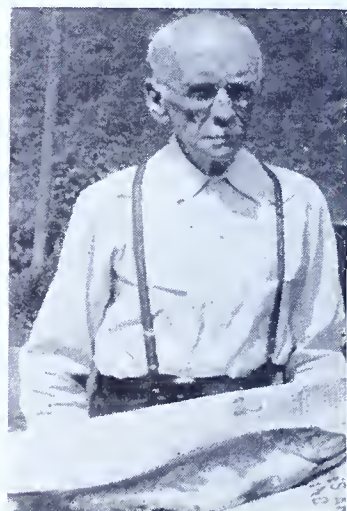
Left Above—

Harry (Mickey) Willauer, Mont Clare, Pa., took this 33-inch, 22-lb. carp in the Schuylkill river canal.



Right Above—

Bobby Nedroski, Conemaugh, holds 12-lb., 2-oz., 30-inch catfish he helped his dad, John Nedroski to land.



Left Above—

H. J. Bock, Conway, Pa., with smallmouth bass taken in Tionesta dam, 20 1/2-inches, 4-lbs., 11-oz.



Right Above—

Raymond Leiby and grandson, Hunter, Elysburg, Pa., with 21-inch, 3-lb., 14-oz. smallmouth they captured in Sullivan county waters.

AND—

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Close, L. E.	R. D. No. 2, Emporium, Cameron Co.	2-2431
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PENNSYLVANIA ANGLER

1952

EL CENSUS · FISHERIES PROBLEMS · FERTILIZATION EXPERIMENT

-O'-RUM · ANGLEWORM · SPINNING TACKLE · NYMPHING



IT HAPPENS EVERY DAY AT FISHERMAN'S PARADISE

Dad kneels, doffs his hat to Junior on that big one taken at Fisherman's Paradise. It happens every day at the popular Spring Creek project located in Centre County near Bellefonte. The Paradise, which officially opened its 1952 season at 8 a. m. EST on Friday, May 16, was declared by Fish Commission officials as the best ever. The stream was clear and the throng which converged upon the project during the day numbered 1,832. Of this number 1,618 were men and boys while 214 made up the number of ladies and girls. The record reveals 2,664 trout caught of which 540 were killed and taken from the project. The Paradise will remain open each day excepting Sunday until 8 p. m. EST, July 19, 1952. While any number of trout may be caught by an angler, only one may be killed each day and when that one trout is kept the fisherman then ceases to fish for the remainder of the day. Fishermen are allowed five visits per season to the project and while no special license is required, he must have a Pennsylvania Resident Fishing License. Children under sixteen years of age, residing in Pennsylvania, do not need a Resident Fishing License. For full details and regulations see Page 23, May Angler. See also Opening Day catches on Page 22.

THE PENNSYLVANIA FISH COMMISSION INVITES YOU TO SHARE IN THE ANGLING FUN.

**COMMONWEALTH OF
PENNSYLVANIA**

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GOVERNOR

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PENNSYLVANIA ANGLER

J. Allen Barrett—Director Division of Public Relations

JUNE—1952

VOLUME XXI, No. 6

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The Cover . . . YOUNG MAN WITH
A TROUT. Six-year-old Robert
Louis Stevenson, Wellsboro, Pa.,
is the angling son of the well known
outdoor writer, Louis Stevenson.

Back cover of trout stream in Monroe County
by Frank J. Kamice, Chester, Pa.



George W. Forrest, Editor

1339 East Philadelphia Street, York, Pa.

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The Results of a

GENERAL CREEL CENSUS



On Pennsylvania Streams

THE Pennsylvania Fish Commission has made a determined effort to maintain contact with the fishing returns throughout the Commonwealth. To do this, they have conducted a general creel census in every county in the state for the last five years. The fish wardens, in line with their other duties, have devoted much time and effort to supply this data.

Naturally, it would be both impracticable and too expensive to conduct a closed creel census in all the counties. A "closed creel census" would mean that every planted trout would be marked for identification and every fisherman would be checked to determine how many of these marked trout had been caught. Other pertinent data would also be collected. However, the Fish Commission has closed creel census areas on a few selected streams and lakes.

The general creel census was initiated in 1947 and carried on until the present time (1951). See Table I.

To show the information gleaned from a general creel census, a representative stream has been selected and the statistics analyzed. The stream selected for this purpose is Yellow Creek.

Yellow Creek is a heavily fished limestone stream, tributary

to Raystown Branch of the Juniata River in Bedford County. Eighteen miles of this stream are approved trout waters and are stocked annually with brook and brown trout. Rainbow trout were planted each year until 1950. Also stocked with brook and rainbow trout are three tributary streams.

The upper basin of the selected stream is in a broad agricultural valley between the mountains. At Loysburg (approximately nine miles from mouth) the creek cuts through the mountain and enters rough, hilly country. In the upper basin, it runs through a limestone formation and then it enters shale and sandstone in the mountains and continues in the same formations to the mouth with the exception of crossing one narrow belt of limestone.

State Fish Warden William E. McIlnay conducted the census on this stream. He visited this area on an average of 27 days in the open trout season which is April 15 to July 31. His visits were made approximately every five days so that fishermen would be contacted on every day of the week and not on days that the

**State fish wardens augment law enforcement duties
with statistics on the trout catch throughout the state**

**By Keen Buss, Biological
Pennsylvania Fish Commission**

Photographs by George H. Gordon,
Official Photographer

stream was fished the most or the least.

To facilitate the understanding of these facts and figures, a list of questions and answers has been prepared.

1. *What were the total numbers, and weight, of the trout stocked during this five-year period?* Seventy-four thousand, one hundred and fifty trout were planted weighing 19,652 pounds and measuring 6 to 12 inches.

2. *What was the total number of legal-sized brook, brown, and rainbow trout planted?* Twenty-five thousand, three hundred and five brook; 37,125 brown; and 11,720 rainbow trout were stocked.

3. *How many fishermen were actually counted?* Fourteen thousand, nine hundred and ninety-one fishermen were counted during the census days.

4. *What was the total distance over which these fishermen were*

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counted? The accumulative mileage investigated by the warden over this five-year period was 973 miles.

5. *How many fishermen were there per mile during the open season? On the first day (April 15)?* There was an average of 15.4 fishermen per mile during the entire season, and 95.6 fishermen per mile on opening day.

6. *How many fishermen were interviewed?* Two thousand, six hundred and eighty-seven fishermen were personally interviewed while the warden was on the stream.

7. *How many trout did these fishermen catch?* During the time of the interview, the fishermen had 6,637 in their creels.

8. *How long did it take a fisherman to catch one trout during the season? On opening day?* During the open season, fisher-

men averaged one trout caught every 1 hour and 29 minutes. On opening day, fishermen averaged one trout every 43 minutes.

9. *Among the three trout species, what relationship exists between fish stocked and fish caught?*

Species	Percentage of total stocked	Percentage of total caught
Brook	34	40
Brown	50	46
Rainbow ..	16	14

10. *What type of baits did the anglers use?* Thirty-seven per cent of the anglers used worms; 32 per cent used artificial flies; 11 per cent used bait fish; 9 per cent used fish bait; and 11 per cent used other artificial baits.

11. *What was the total number of all fish taken, including the warm-water species?* A total of



State Fish Warden William E. McIlroy checking angler's catch.

6,954 fish were taken. Ninety-five per cent of these were trout; 3.3 per cent were suckers; .06 per cent were fallfish; .04 per cent were rock bass; and .02 per cent were smallmouth bass.

CENSUS RESULTS

Year	1947	1948	1949	1950	1951	Totals
Number fishermen counted	69,399	79,475	66,112	77,184	85,970	378,140
Number fishermen interviewed	33,035	34,173	29,198	32,538	34,035	162,979
Total mileage covered	11,359	12,345	10,648	10,113	12,147	56,612
Total trips	2,105	2,233	1,936	1,834	1,940	10,048
Number of takable brook trout caught	32,384	23,971	25,570	20,834	26,855	129,614
Number of takable brown trout caught	24,475	24,265	20,348	20,735	23,398	113,221
Number of takable rainbow trout caught	16,616	19,503	15,702	21,622	17,162	90,605
Number of undersized brook trout reported caught	12,681	13,585	14,612	11,641	11,021	63,540
Number of undersized brown trout reported caught	1,904	2,295	3,722	2,617	2,323	12,861
Number of undersized rainbow trout reported caught	316	445	397	392	293	1,843
Hours required to catch one fish	1.7	1.7	2.0	2.0	2.0	.....
Average number of trout fishermen counted per mile—all counties	6.1	6.4	6.2	7.6	7.0	.....
Percentage of trout fishermen using angle worms	61	63	59	59	63	.....
Percentage of trout fishermen using other fish bait	2	4	5	4	3	.....
Percentage of trout fishermen using bait fish (minnows)	13	11	10	10	10	.....
Percentage of trout fishermen using artificial lures	24	22	26	27	24	.....

TABLE I. GENERAL CREEL CENSUS TOTALS FOR ALL COUNTIES

COMMONWEALTH OF PENNSYLVANIA
BOARD OF FISH COMMISSIONERS

Wardens' Report of Streams Patrolled

Name of Stream Yellow Creek
Tributary to Raystown Br. Jun. River County Bedford
Stream Condition: High _____ Low _____ Normal *
Temperature: Air 61 Water 52 Locality 1 Hour 10:30 A.M.
Temperature: Air 64 Water 54 Locality 2 Hour 11:55 A.M.
Temperature: Air 64 Water 56 Locality 3 Hour 4:00 P.M.
Weather Conditions: A.M. and P.M. cloudy and some rain
Number of Fishermen Actually Counted 41 Between Woodbury
and Hopewell, A Distance of 18 Miles.
Number of Fishermen Interviewed 9 Between Woodbury
and Hopewell, A Distance of 18 Miles.
Total Number of Hours Fished by All Fishermen Interviewed 66

RECORD OF FISH CAUGHT

(To be Obtained from Fishermen Actually Interviewed)

Fish Counted		Reported Caught
Species	Number	Number Under Legal Size
Brown Trout	51	1
Brook Trout	26	
Rainbow Trout	2 -	both trout taken in the vicinity of the town of Yellow Creek; one was 17 inches long, the other 16 inches long.

Types of Lures Fishermen Were Using When Interviewed:

Angle Worms 2 Fish Bait _____

Bait Fish 1 Artificial Flies _____

Other Artificial Lures 6 Miscellaneous _____

Remarks: Most of the trout were taken on artificial lures.

The anglers are interested in this work on Yellow Creek.

Date May 10, 1951 Name of Warden Wm. E. McIlroy
William E. McIlroy

Locality #1 - Headwaters

Locality #2 - In the vicinity of the Loysburg Gap

Locality #3 - Two miles upstream from the mouth

← Typical warden report used
in general creel census.

The statements listed under "Remarks" on the creel census cards are both enlightening and interesting. Some of the quotations are as follows:

"The anglers cooperate well on the census."

"Today, I find that most of the nice catches were taken on minnows."

"The fly fisherman is holding his own."

"One 24½ inch brown trout was taken that weighed 7¾ pounds."

"Fishermen are interested in this interview and express their desire to help."

Comments such as these help to round out a picture of the stream.

The rainbow trout offer an interesting enigma. Although there were no rainbow trout stocked after 1949, this species of trout continued to appear in the creels of the fishermen in 1950 and 1951. Eighty-one rainbows were checked in 1950 by the warden, and 29 were found in fishermen's creels in 1951. These trout could have run down from tributary streams, or they might have been the result of natural reproduction. However, the large size of these trout, most of them larger than 16 inches, would lead one to believe that they were the results of former plantings in this stream. Certainly, it is a fact which skeptics, who believe that all rainbow trout migrate seaward soon after planting, should take into consideration.

Reports such as these are on file at the Pennsylvania Fish Commission's Central Field Office at Bellefonte. The combined data of all these reports produce the information which helps give the Pennsylvania anglers more and better fishing each year.

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FISHERIES PROBLEMS

By C. R. Buller

Chief Fish Culturist, Pennsylvania Fish Commission

POOR land usage is one of the chief factors that has been detrimental to fishing in Pennsylvania. Fisheries technicians realize that aquatic animal life—with special reference to fish—are almost as dependent upon the goodness of the soil in and around the water areas where they live as are the higher forms of terrestrial life. This being the case, the Pennsylvania Fish Commission is vitally interested in the program of the Soil Conservation Commission and is pleased to assist and cooperate with this agency in its valuable work.

One may wonder why the soil would have any direct bearing on the well-being of a fish. Just as the type of soil in a pasture land determines the quality of forage which provides food for cattle, so the type of soil in the bottoms of various water areas influences the production of fish-food organisms. But soil erosion or the silting of ponds, lakes, streams and rivers is detrimental to fish and fish-food organisms, for this condition in streams creates shifting, unstable bottom and much roily water—both unfavorable. In artificial ponds this heavy silting creates an unstable bottom and makes the ponds relatively short lived.

The Federal Government and several state agencies are creating many thousands of additional acres of fishing waters in the Commonwealth by constructing impounding reservoirs. The Fish Commission biologists consult

with these agencies so that biological factors are considered as well as engineering data when the areas eventually are flooded with water. This cooperation will assist greatly in providing future worthwhile fishing in these areas. This goes back even to the analysis of the soil in and around the area before the land is flooded. This is done with the knowledge that most newly created waters usually produce a heavy fish crop. Later this production falls off. If comprehensive data on soil problems are available before the area is flooded, the soil condition can perhaps be restored when the production starts to decrease.

Many of these reservoirs are constructed on trout streams. The impounding of such waters without due engineering consideration might in some cases destroy the stream for trout below the breast of the dam because of high summer water temperatures. Where reservoirs are constructed on major trout streams, the Fish Commission's engineers consult with the agencies creating the dam and devise means of drawing off the normal overflow from the reservoir from a point near the bottom rather than from the surface. This provides for favorable

water temperatures for trout in the stream below the dam and thus saves another trout stream for the angler.

Pennsylvania is a great industrial state and the effluents from industrial plants and metropolitan districts entering our streams have a serious effect on fisheries problems. The Pennsylvania Fish Commission's Fisheries Research Laboratory at the Bellefonte Hatchery is equipped to carry on many different types of scientific investigations. Representatives of the Health Department and technicians of the Fish Commission are constantly working on pollution abatement problems in this laboratory, and it is felt that their scientific findings are and will be of a tremendous asset in helping to solve pollution problems.

Unfortunately, private interests are closing many water areas to public fishing. To offset the loss through posting with "No Trespass" signs, the Fish Commission is purchasing or building impounding reservoirs, three of which are now under construction by this Department. Perpetual easements or outright purchases are being obtained on some of the

(Turn to Page 26)

Results of Six Years of Fertilization On A Northeastern Pennsylvania Lake

Hankins Pond

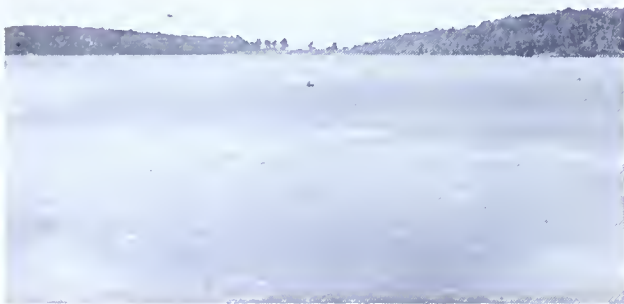
FERTILIZATION

EXPERIMENT



Condition of dam when the Fish Commission purchased the land.

Partial view of Hankins Pond when filled to maximum water-holding capacity.



View of pond after it is drained.



By Keen Buss, Biologist

Pennsylvania Fish Commission

Fish Commission Photographs by George Gordon

HANKINS Pond lies in northeast Pennsylvania among the glaciated, rolling hills of Wayne County. It is an artificial lake, seventy acres in extent, originally constructed in 1868 by the Delaware and Hudson Canal Company. This pond was a reservoir of water for the canal that carried coal from the Honesdale area into the New York market.

The Pennsylvania Fish Commission, then known as the Department of Fisheries of the Commonwealth of Pennsylvania, purchased Hankins Pond in August, 1917. At the time the pond was purchased it consisted of nothing more than a creek channel. In 1923, the reconstruction of the dam was completed,

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and the pond was added to Pleasant Mount State Fish Hatchery as a fish propagating area.

Situated as it is in a heavily glaciated country with soils formed from a sands one bedrock and glacial till, it was believed by the fish culturists of the Fish Commission that fertilization could improve the fish-producing qualities of the Lake. Mr. Jerry Zettle, superintendent of the Pleasant Mount Hatchery, and his men took over the task of fertilizing the water area and keeping the necessary records. These records, started in 1946—one year before fertilization began—are the basis for the material contained in this article.

Superintendent Zettle viewed the problem as a farmer might view a worn-out farm on which the soil nutrients had been depleted. Certainly the lake had been producing a fish crop for almost eighty-five years with little being returned to the soil but acid organic sediment which was carried in by two small tributary streams. To build up this soil and add nutrients, the commercial fertilizer 5-10-5 was added the first year (1947). The following year, in addition to the 5-10-5, sodium nitrate (NaNO_3) was applied to increase nitrogen availability. The addition of sodium nitrate hastened the "bloom" (a development of minute plants and animals which causes the water to become green or cloudy). This fertilization policy of 5-10-5 and sodium nitrate was followed during the years of 1949 and 1950, but in 1951 there were reasons to believe that the soil on the "farm" was again built up. Therefore, the adding of nutrients was discontinued.

The procedure followed in managing the fish population in the lake was as follows: In the late fall, usually in October, the pond was drained to the original channel and the fish were driven to a catch-basin by the use of an electric fish screen unit. This apparatus gives off mild underwater shock waves which cause the fish to run before it. These fish were then seined from the catch-basin, weighed, and planted in areas open for public fishing. However, enough fish were retained to act as brood stock for the following season. These were returned

TABLE I Relationship of Fertilizer to Fish Production			
YEAR	KIND OF FERTILIZER	AMOUNT OF FERTILIZER	FISH PRODUCTION
1946	None	None	7,412 lbs.
1947	5-10-5	13.5 tons	13,202 lbs.
1948	5-10-5 Sodium nitrate (NaNO_3)	12 tons 500 lbs.	12,179 lbs.
1949	5-10-5 Sodium nitrate	3 tons 600 lbs.	20,482 lbs.
1950	5-10-5 Sodium nitrate	3 tons 600 lbs.	14,271 lbs.
1951	None	None	13,843 lbs.
TOTAL	5-10-5 Sodium nitrate	*31.5 tons *1,700 lbs.	81,749 lbs.

* Total cost of fertilizer was \$1,294.54.

TABLE II Rainfall in Inches in the Area of Hankins Pond							
YEAR	MAY	JUNE	JULY	AUG.	SEPT.	TOTAL	FISH PRODUCTION
1946	9.6	4.4	4.2	3.4	1.8	23.4	7,412 lbs.
1947	8.8	4.9	10.9	3.9	3.2	31.7	13,202 lbs.
1948	4.4	4.8	2.1	1.5	.7	13.5	12,179 lbs.
1949	4.8	.6	4.0	4.3	3.8	17.5	20,482 lbs.
1950	4.9	4.4	6.1	2.8	3.1	21.3	14,271 lbs.
1951	2.9	4.4	4.6	2.9	4.1	18.9	13,843 lbs.
Average	5.9	3.9	5.3	3.1	2.8	21.5	13,565 lbs.

to the pond as soon as it was again filled with water. This re-planting was done in November of the same year. The following spring, during the latter part of April, perch eggs were also put into the pond. While the bass fry were still in schools in early July, some of them were netted and placed in tanks for artificial rearing. Other than this, there was no other removal or addition of fish until the pond was drained in October.

In 1947, fertilization was initiated on May 15. At this time three tons of 5-10-5 (Table I) were broadcast from boats into the water. Every two weeks three tons were added until June 28, when only one and one-half tons were added and fertilization was discontinued for the remainder of the year.

During the summer of 1948, twelve tons of 5-10-5 fertilizer were added.

Fertilization began on May 12 and was completed on July 19, when 500 pounds of sodium nitrate were applied. This sodium nitrate appeared to hasten the bloom, as previously noted.

During 1949 and 1950 only three tons were applied annually. This application was made at one time in May of 1949 and June of 1950.

Fertilization was abandoned during the summer of 1951 since the turbidity was of such intensity that it was felt that the fertility of the lake made artificial fertilization unnecessary. In all probability this condition was caused by available nutrients remaining from fertilization of previous years.



Driving fish through dam
gate into the catch-basin.

Further information which may have a bearing on the effect of fertilization is that the pond had a maximum depth of twelve feet with an over-all average of about six feet. Previous to the fertilization, the bottom of the pond was visible at all times due to the low turbidity in the lake. The pH at the inlet is 6.9 and the total alkalinity is 17 p.p.m. In the pond the pH is 6.8 with a total alkalinity of 11 p.p.m.

What are the results of this fertilization? Did it result in an increase in the fish production after the pond was fertilized? If so, what was the cost of this increase in production?

The average annual increase in fish poundage from 1947 to 1951 over 1946, which is the only year in which there

TABLE III
Record of Fish Planted and Removed from Hankins Pond

DATE Fall of:	LARGEMOUTH BASS	BROWN BULLHEADS	SUNFISHES	GOLDEN SHINERS	CHAIN PICKEREL	YELLOW PERCH	WHITE SUCKERS	EELS	TOTALS
1945—Lbs. planted	*301	*926	*585	*1,103	0	†3,240,000 (Eggs)	0	0	*2,915
1946—Lbs. removed ...	305	1,373	1,430	2,155	494	1,590	35	0	7,412
1946—Lbs. planted	235	871	99	370	0	†3,960,000 (Eggs)	0	0	1,605
1947—Lbs. removed ...	461	3,272	1,623	2,376	641	4,824	0	0	13,202
1947—Lbs. planted	304	789	680	893	0	†8,100,000 (Eggs)	0	0	2,666
1948—Lbs. removed ...	624	3,259	931	1,679	754	4,932	0	0	12,179
1948—Lbs. planted	157	1,090	1,461	890	0	†8,500,000 (Eggs)	0	0	3,598
1949—Lbs. removed ...	977	9,901	2,750	3,335	531	2,938	0	0	20,482
1949—Lbs. planted	537	1,365	1,031	1,425	0	†7,500,000 (Eggs)	0	0	4,358
1950—Lbs. removed ...	526	3,268	1,436	1,848	297	6,896	0	0	14,271
1950—Lbs. planted	501	1,216	594	1,143	0	†3,600,000 (Eggs)	†100,000 (Fry)	0	3,454
1951—Lbs. removed ...	725	3,007	820	2,537	351	6,353	7	43	13,843

* Estimated.

† Planted following spring.

are records available before fertilization started, is 7,455 pounds (Table I). The increase in weight of fish based on the cost of fertilizer amounted to 3.5 cents per pound.

As far as can be determined there is no noticeable relationship between rainfall (Table II) and the effect of fertilization on fish production in this pond.

Table III offers some interesting information. There seems to be no direct correlation between the amount of fish planted and the amount removed. Further experimentation is proposed to determine the minimum number of brood fish that may be planted for maximum results.

Another interesting question brought forth by this chart is: "Is this production the maximum production that this pond will produce regardless of how long the fish remain undisturbed in the water area?" Again the Fish Commission proposes to answer this question by allowing the fish to remain in the pond for two or more years and then obtaining a comparative weight.

Although in some cases, using the largemouth bass as an example, the weight of fish removed does not show a great increase over the pounds of fish planted, the increase was gained in numbers not in poundage.

Another incident may be noted in the case of the chain pickerel. Since it is impracticable to drain a lake of this size and remove every fish each year, there is a production from fish which could not be taken out. This is the reason for the appearance of the pickerel when no plantings were made the previous fall.

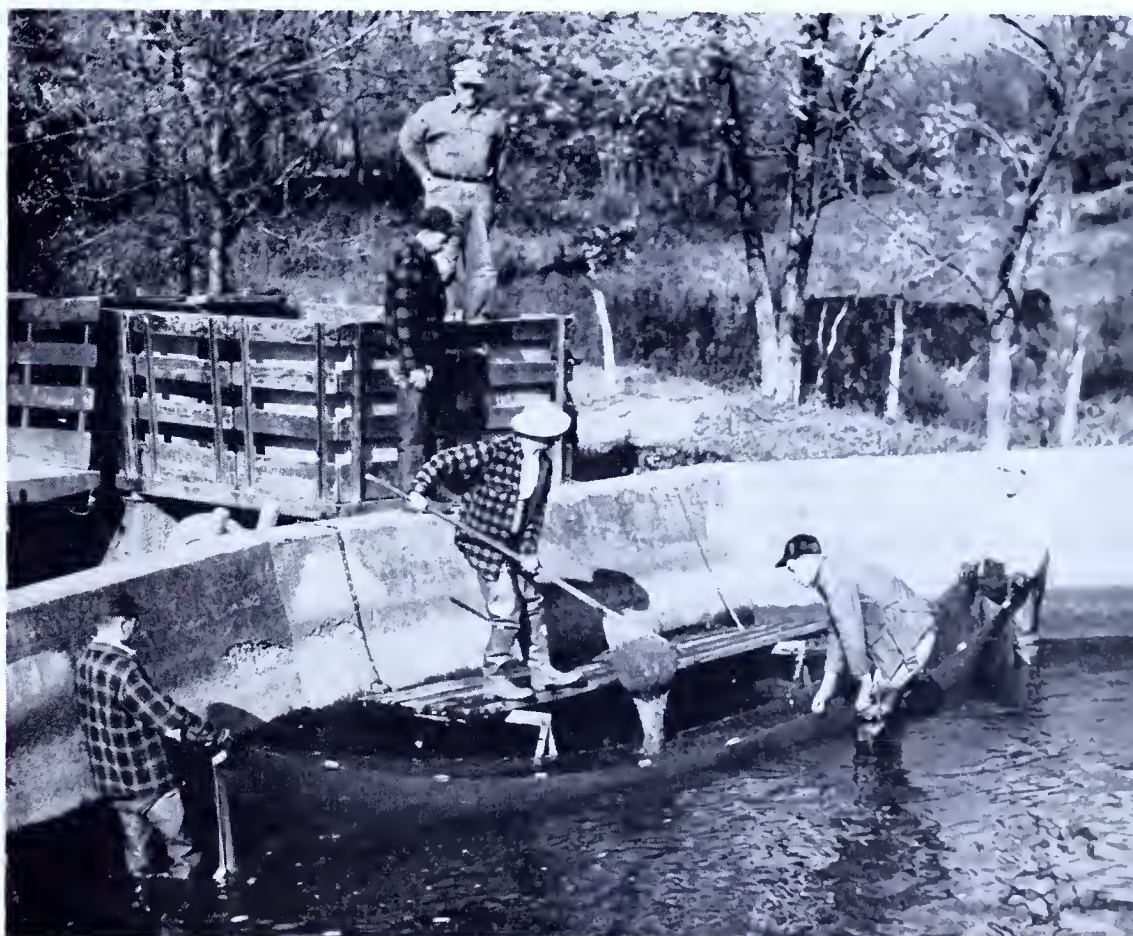
Also included in Superintendent Zettle's report are turbidity records (these turbidity records indicate the proportionate amount of suspended material—in this case, mostly plant life in the water). These records were not included in the report since readings were not taken before the pond was fertilized and therefore would not be relatively significant. However, they will be included in subsequent analyses of further experiments.

The foregoing experiment is one in the long range program being performed or proposed for the many state ponds throughout the Commonwealth. The information gathered will be applied to future fisheries management plans.



An electric fish screen unit is used to concentrate fish into a catch-basin.

Seining fish from catch-basin.



By
KEEN
BUSS

Photographs by
George Gordon

JUG-O'-RUM!

THE BULLFROG

Bass Voice of Nature's Spring Symphony



His love song ushers in summer from the wild and mysterious world of the marshlands.

"From every marsh a chorus breaks, a choir invisible, as if the blossoms underground, a breath of utterance have found."—TABB

ALL OF spring's visual beauty would lose its tone if it were not for the myriad of nature's musicians whose presentation furnish the overture for the opening of the summers choral symphony.

The higher pitched orchestration of birds, insects and small frogs is blended and enriched with the resonant bass of the male bullfrog. Embosomed among the aquatic grasses, the bullfrog sends forth a series of love calls booming into the stillness of the warm spring night. The song of love is not in vain; a voiceless actress moves upon the scene to do her part in the amorous play of life which follows. The stage is now set for an age-old performance—"The Reproduction Of Its Kind." Although already duplicated infinite times, it will continue its run until the last act when the eons of time have changed the entire complexity of the earth.

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Many descriptions, such as the one given above, have been written by individuals to portray the esthetic values of America's most aquatic frog—the bullfrog. The biologist not only recognizes the esthetic values, but also the deeper significance that this inhabitant of marshlands and lakes represents in the evolutionary scale. The intriguing physical adaptations, that characterize this amphibian, form an evolutionary link between the fishes and reptiles. The investigations of herpetologists concerning the habits and life history of the bullfrog have enhanced its beauty and importance even more.

The zoologists have bestowed upon the largest of frogs, the mouth-filling scientific name of *Rana catesbiana*. It is known by this name throughout its range, which is east of the Rockies to the southern limits of the United States. Within this region, it inhabits the more quiet waters of ponds, lakes, and marshlands.

In the spring, usually in June in the northern states, this dark green frog emerges from the mud beneath the water. The male seeks a point of vantage where he establishes propriety and emits his coaxing croaks to summon his voiceless mate. Into the still night air this booming "Jug O Rum" is mingled with the chorusing of many others of his genus. The volume of this chorusing rises and falls as if an invisible maestro were leading these musicians of the marshlands.

The deep rich tone of the male bullfrog originates in voice sacs that are located on each side of the tongue. The basso notes of the male are instrumental in bringing together the two sexes. Upon meeting her mate, she is grasped in a mating clasp, or *amplexus*, and in the coolness of the evening the primitive lovemaking follows. As the male of the species grasped the female in nuptial embrace, he presses a specialized swollen digit on his forefoot into the sides of his mate and forces the eggs from her. Immediately at extrusion, he fertilizes the eggs with milt. As the eggs come in contact with the water, a gelatinous envelope is formed which helps protect them from the rigors of life which follow. The perpetuation of the species is now insured and masses of 10,000 eggs or more will float in the water while the embryos develop.

The preceding events have accomplished their purpose. After a time, depending on water temperatures, the eggs hatch into minute tadpoles or



Sometimes he's hard to see in his duo-world of water and air. The bullfrog faces death from below as well as from above and his worst enemy may be the man who believes frogs' legs are delicious.

"polliwogs." These little fellows have external gills for breathing but as their growth proceeds the external gills vanish and are replaced by internal gills and a spiracle, or breathing pore, which is located on the left side of the body.

After spending two winters in tadpole form, nature performs one of her miracles and changes the tadpole from a fish-like creature into the more complicated semi-terrestrial form. The tail is absorbed, the legs develop, the internal gills are exchanged for lungs and the wide mouth appears. Thus in July or August of the second year this gradual metamorphosis—a change from a tadpole to a bullfrog—is complete.

Scientists feel that they have found the key for this metamorphosis of a tadpole into a frog. Experiments show that when thyroid substances are artificially introduced into the larval (tadpole) form it causes metamorphosis in one to three weeks. On the other hand, there will be no change if the thyroid gland is removed from the larval form. Therefore, it may be assumed that the ductless thyroid gland controls this remarkable conversion of animal forms.

After the tadpole has changed to a true frog form, the bullfrog takes up solitary habits (the only exception being in breeding season). It is then that he is most often encountered perched on a log or floating among the lily-pads with only his pop-eyes protruding above the level of the

One bullfrog can touch off the entire choir with a kettledrum chorus that bellows out on warm June nights.



(Turn to Page 28)



Each worm possesses both male and female reproductive organs. Yet, when mating, they exchange only the sperm of the male cells.

TEN hearts and two sets of reproductive organs! That's the formidable equipment possessed by the common earthworm or nightcrawler. But aside from these little known biological incongruities the fishing worm is probably one of the most "taken for granted" creatures in existence. It can be about as dependable as the sun itself, that is, so far as the angler is

concerned. And despite the vast array of artificial baits, flies and lures that have come and gone and still coming, the number of fishermen using this modest adjunct to a successful fishing excursion probably outnumber those using all of the other lures combined, both natural and artificial.

I shudder when I think of how close I came to becoming a Purist. Let

By N. R. Casillo

Photographs by courtesy of General Biological Supply House, Chicago, Illinois, unless otherwise credited.

The Angleworm.

"Fly fishing is an art, a fine art beyond doubt, but it is an art and, like all art, it is artificial. Fishing with an angleworm is natural. It fits into the need of the occasion. It fits in with the spirit of the boy. It is not by chance that the angleworm, earthworm, fishworm, is found in every damp bank, in every handy bit of sod, the green earth over, where there are races whose boys are real boys with energy enough to catch a fish. It is not by chance that the angleworm makes a perfect fit on a hook, with no anatomy with which to feel pains, and no arms or legs to be broken off or to be waved helplessly in the air. Its skin is tough enough so as not to tear, not so tough as to receive unseemly bruises, when the boy is placing it on the hook. The angleworm is perfectly at home on the hook. It is not quite comfortable anywhere else. It crawls about on sidewalks after rain, bleached and emaciated. It is never quite at ease even in the ground, but on the hook it rests peacefully, with the apparent feeling that its natural mission is performed.

—"Boys' Fish and Boys' Fishing," by David Starr Jordan.



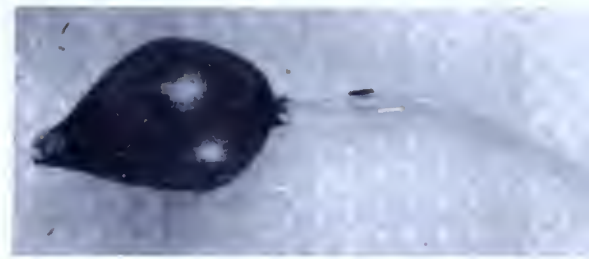
Egg capsules of the nightcrawler are about the size of a mustard seed. Upon hatching the young are diminutive replicas of the adults.

me hasten to add that in my native heath, where the streams were not only beautiful but filled with lusty trout, a Purist was one who used nothing but flies to entice his finny quarry. And that, mind you, did not include nymphs, feather minnows and streamers. Flies, both dry and wet, but flies exclusively.

My father was a Purist, but he had the good sense to lead his boy in the rather uncomplicated channels of the worm fisherman. Like a true son I hankered for the bits of tinsel and feathers, but he was a wise father who knew only too well that boys must experience the earthly, elemental fun that can be had with the earthworm and the fishes of boyhood.

I did not follow in the rather restricted footsteps of my father because I never was nor will I ever be adverse to using worms whenever the occasion demands them. Why frustrate fish with artificials when they hanker for a juicy nightcrawler? Now, don't get the idea that my motto is to get fish at any cost. Rather, it is, *catch fish but kill less*. Also, don't forget that it's just as easy and often easier to flatten a barb on a single Limerick than it is to flatten them wholesale on a plug.

However, let's get back to those multiple organs of *Lumbricus terrestris* as



A worm emerging from an egg sac. The sac may contain one or several or even more.

These are the egg capsules of the nightcrawler, our largest earthworm species.
—Photo by Carolina Biological Supply Co.

the scientists are wont to call our most familiar species of fishworm. When the average fisherman gets a strangle hold on an unsuspecting nightcrawler who has surfaced to gather leaves, gulp a bit of fresh air or find itself a mate or perhaps, take a crack at all three, little does the aforementioned fisherman realize that what looks like a pinkish brown length of wriggling flesh is really quite a collection of organs, tubes, muscles, and false teeth quite capable of living in an environment so highly specialized as to be a literal "no man's land" to practically all other creatures. What other animal can, for example, eat its way through the ground when the occasion demands it? Yes, sir, ordinarily the fishing worm pushes its way through the humus-rich soil in which it loves to live. However, if it encounters tough going through strata of stiff clay soil it eats its way through it, surfacing periodically to dump its load of "castings" familiar to any one who dabbles with soil. False teeth? Sure. From time to time the worm replenishes its crop with bits of stone, glass, pottery, etc., for grinding food in about the same way that it's done by a chicken except that the latter uses a gizzard.

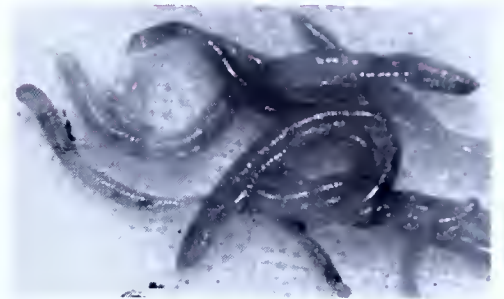
How does a nightcrawler living from a few inches to several feet underground know when night has fallen? Your guess is as good as mine. But that they do know when day is done cannot be denied. The biologists explain that it's due to the worm's sensitivity to light. However, pray tell how they are aware of the diminishing light through the layers of opaque soil? In this respect it may be well to mention that all species of earthworms have certain areas on the body surface that are sensitive to light. Every collector of nightcrawlers has observed how the worms literally tie themselves into a variety of knots endeavoring to get away from light. Light to worms

is synonymous to heat and the resultant drying effects that accompany heat. Hence the worm's aversion to light.

Some bright lad came up with the plausible sounding explanation that earthworms have strategically placed scouts who sound the end of departing day; the scouts being ensconced practically at the surface under a tussock of dense grasses. True, many of the scouts fall prey to robins and wandering moles, but the sacrifices are for the common good. How do they broadcast to their fellows? It is said that the earthworm is capable of making slight clicking sounds easily audible to its companions scattered over the immediate area. Also, it is this same sound that often betrays the worm's whereabouts to listening robins. The bright lad nails down his argument by declaring, "Why, you yourself have seen robins with their heads cocked attentively listening for the worms to disclose themselves."

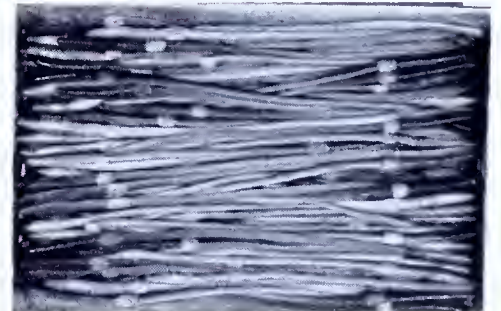
Sure, worms make sounds as they withdraw into their burrows from

(Turn to Page 29)



Appearance of the band about the body indicates sexual maturity. Nightcrawlers mature in about eight months. These range in age from two to six months.

These preserved specimens clearly show the clitella, the encircling bands which later become egg capsules or cocoons.



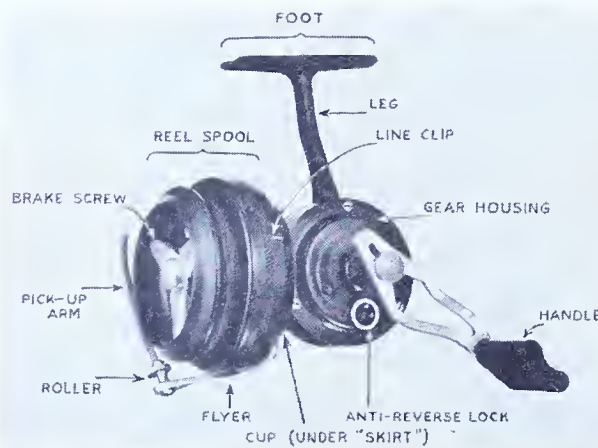
A familiar nocturnal sight most any time during the summer fishing season. After rains or on nights when dew is heavy the creatures emerge from their burrows. To capture them the hand must be almost as quick as the eye.



TIPS ON SELECTING SPINNING TACKLE

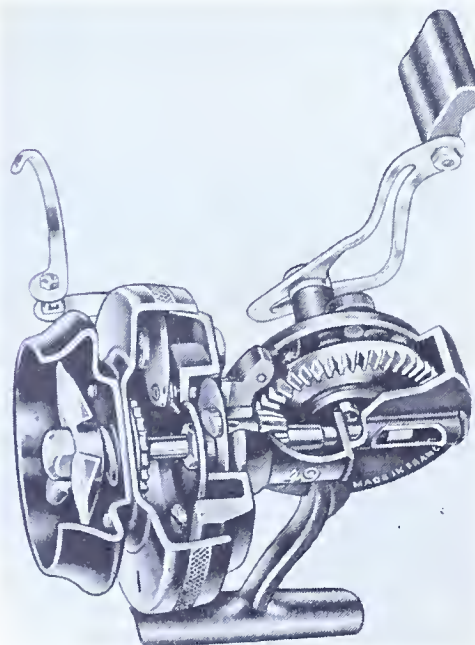
By JOSEPH D. BATES, JR.

(Joe Bates, Jr., generally considered to be America's foremost authority on spinning, is the author of "Spinning for American Game Fish." Two more of his spinning books, "Spinning for Fresh Water Game Fish" and "Spinning for Salt Water Game Fish," will be published later this year. This is the first of several articles he will write for the PENNSYLVANIA ANGLER on this popular subject.)



Exterior parts of the "Ru Sport" spinning reel.

Cutaway view of the "Ru Sport" spinning reel, showing interior parts.



SPINNING is featured as being such an easy method of fishing that "anyone can learn in a few minutes." Such a statement is a bit on the rosy side because there's a lot to know about selecting tackle and about using it properly. The statement is true in that almost anyone can learn quickly to make long casts with light spinning lures and lines. The method pays off handsomely in many ways. Anglers everywhere are finding out that spinning is lots of fun; that the relatively light tackle catches more fish, and that spinning gear provides the long casts so often necessary to reach them.

Selecting suitable tackle is the first important step to success in spinning. Many good rods, reels, lines and lures are available, but some which are advertised for spinning are not as suitable as others. Many anglers ask, for example, about the type of so-called spinning reel which has a cover over the spool. Some of these reels are uncommonly good ones for plug or strip casting, but they are not spinning reels in the true sense. A true spinning reel offers an *unimpeded* uncoiling of line to give minimum drag to the flight of the lure. The covered spool type of reel has an aperture (very close to the spool) which is smaller than the smallest butt guide. Tests prove that small guides on a rod (instead of larger ones) cut down casting distance by as much as thirty per cent. So, let's eliminate the covered spool type from this article and confine comments to *true* spinning reels, regardless of the merits of the others.

The average sized fresh water spinning reel should hold about 200 yards of 6 pound test line, or about 250

"SOUTH BEND—JOE BATES, JR." SPLIT BAMBOO RODS DESIGNED BY THE AUTHOR

(At Right is No. 569 Light Action and at left is No. 669 Medium Action. Two glass fibre salt water rods complete the set of four.)

yards of 3 pound test, which is more than enough for inland fishing. The illustration shows a typical reel of this size, and identifies the names of its parts. I would not hesitate to use a reel of this size in open water for fish of twenty pounds or bigger. In fact, I prefer it to many of the larger and more expensive types for all fresh water and for light salt water spinning.

In selecting any spinning reel, the smoothness of the brake is vitally important. The brake screw should give at least three complete turns of adjustment between a free and a locked spool. This allows ample latitude in setting the brake properly for fine lines and light lures, or for stronger lines and heavier lures. It allows the fisherman to adjust the reel brake (when playing a fish) without danger of locking the reel and of breaking the line. The "Ru Sport" reel illustrated provides five complete turns, which is about the maximum.

If possible, before buying a reel, rig the tackle and let someone pull out line in simulation of the run of a fish. See that the line pays out under a smooth drag, rather than a jumpy one, since the latter might bind too much during a run and thus break the line. Be sure that the brake screw remains absolutely stationary during the test. If the screw "creeps," indicating faulty construction, the reel would be a poor investment. The majority of reels are properly made in this respect, but many of the older ones would change tension annoyingly, of their own accord, thus causing many lost fish.

I agree with experienced spinning anglers that large diameter spools are greatly to be preferred over smaller diameter ones. The larger spool gives less drag to the line, allowing longer casts. It provides faster line retrieve; allows more even brake adjustment, and it puts fewer twists in the line in casting. This important feature is another reason for my preference of the "Ru Sport," whose reel spool is five-eighths of an inch larger in diameter than the average reels of this size. I also like a reel whose spool covers the cup, because this prevents line from dropping between cup and spool and getting caught in the works beneath. The "skirted" spool also helps prevent dirt and spray from getting into the reel. Even more important, this feature aids the angler in "thumbing" the spool with the fingers of his reel hand during the run of a fish. This supplementary braking power is most helpful and can instantly be applied with any desired pressure.

It is well to insist on a reel with a good anti-reverse lock. This handy gadget prevents the reel from back-winding when a fish is taking out line (and at other times, such as when the tackle is being strung up or carried from place to place).

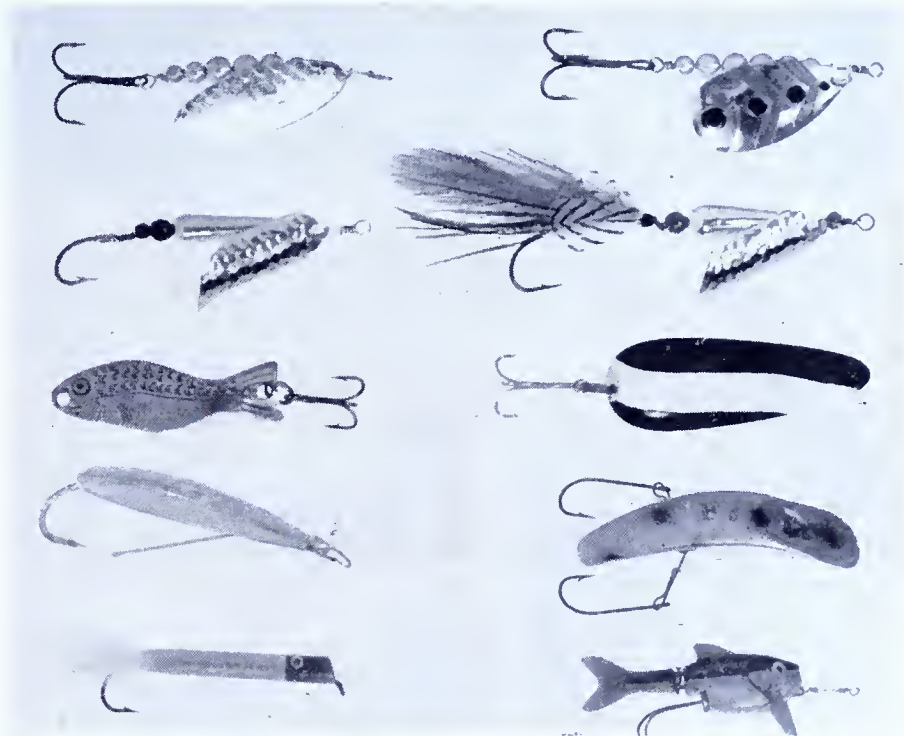
What about the pick-up arm? Should it be the manual type, the bail type, or the more common automatic pick-up arm? Both the bail type and the automatic (the latter is shown in the illustration) are handier for beginners because they close and grab the line when the reel handle is turned; thus making it unnecessary to pick up the line with the forefinger, as is done with the manual type. Many experienced spinning fishermen, however, like the manual type better. They find it extremely easy to pick up the line with the forefinger and think the pick-up arm or bail gets in the way. Most popular of all three, however, is the

automatic type (as shown). It is easier for beginners to handle and, once they have started with it, they rarely find it advisable to change.

Lastly in these necessarily brief comments on reels, be sure that the one selected operates smoothly and easily. Noisy reels or reels which are stiff in operation indicate poorly made and poorly fitted inside parts. High quality reels operate beautifully because their parts are machine turned and are carefully fitted. Some of the cheaply made ones cost as much (or nearly so) as the extremely good ones!

Pick the power of the rod to correspond to the type of fishing you plan to do. The choice between glass or split bamboo is one of individual preference. In light weight rods, I like split bamboo better because well made examples have greater delicacy of action. Glass is better for heavy spinning

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TYPICAL SPINNING LURES

C. P. SWING
(Rockland Tackle Co., Suffern, N. Y.)

6 sizes, 1/10—1/4 oz., brass, copper, nickel

BIRDWING SPINNER

(Lyford Lures, Inc., Canaan, Conn.)

1/4, 3/8, 1/2 oz. in brass only

GOLDFISH

(Sportsmen's Center, Indian Orchard, Mass.)

1/4 oz. in brass only

SILVER MINNOW

(Louis Johnson Co., Chicago)

1/24 to 1-1/8 oz., gold or silver

QUILBY MINNOW

(Pequea Works, Inc., Strasburg Pa.)

Red and white, colored tail, many sizes

FLIRT SPINNER

(Rockland Tackle Co. Suffern, N. Y.)

3 designs in 1/5 oz. size

BIRDWING STREAMER

(Lyford Lures, Inc., Canaan, Conn.)

8 patterns in 1/4 oz. size, brass fittings

DARDEVLE

(L. J. Eppinger, Inc., Detroit)

2/5 oz. in several colors

FLATFISH

(Helin Tackle Co., Detroit)

many sizes and colors

PLUCKY

(Chas. Garcia Co., New York)

1/6, 1/3, 1/2 oz. painted rubber



▲ Meet Jim, Gene and Dick, rods slung over shoulders, ambling down the trail to the old fishing hole. It's a long hike, all right, but time travels fast when you're a young fellow.



▲ At the end of the road—the millpond. Here the trio baits up for a try at the bass and panfish. Curly, the spaniel, joined the boys half way down the road. He's a dyed-in-the-wool fisherman, too.

Fishermen Three

Photo Story By
JOHN CALKINS
Outdoor
Photographers
League

God is in his Heaven . . . all's well with the world! While most men and women sincerely and fervently wish it were so, youth, with a more optimistic outlook only knows summer is here, school is out. Typical vacation day along the streams of the Commonwealth is shown in this month's picture story.



▲ Nibbling has dropped reach deep into the pocket for a sandwich. A log across the stream is an ideal spot.

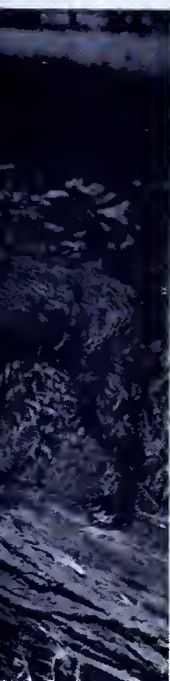
◀ Dick decides to try the creek, where the big lunkers sometimes lurk. He jumps out into the sparkling river in anticipation of the elusive hookup and with patience common to boy fishermen.



▲ Boy, did you see that bobber go down! While Dick watches, Gene pulls in his first legal-sized bluegill. It's a whopper, in any boy's eyes.



▲ There's admiration and envy aplenty in the looks of Gene's two pals, as they examine the first catch of the day. Look, he even swallowed the hook.



▼ The big bluegills have gone deep now to escape midday heat, and only the "minnies" remain to rob hooks of worms. Boy and dog commune quietly together, contemplating a motionless bobber on a quiet pond.



▲ It's a long jaunt home, and the weary lads try hitching a ride. Their catch is not large. But Jim, Dick and Gene will be back soon to the babbling brook or the millpond, and they'll catch that whopper before summer is gone.

YOUR editor had a notion that some men step out of their everyday character as soon as they step into waders and start casting a fly, and asked me to recall, if I could, any experiences in support of this theory. An inviting idea, when I began pondering its possibilities.

The first to come to mind was a man named Innisburn Bruce Angus MacTavish. He signed it I. B. Mac, partly because he had that kind of a sense of humor but chiefly to save ink. MacTavish ran his home in the approved tradition of Scottish thrift. All income and outgo were strictly budgeted, all left-overs saved; even the MacTavish garbage, scant as it was, became in time compost for the garden.

Mr. I. B. Mac had a magic touch with a trout rod and a dry fly. Once, years ago, we invited him up to our water. On our stream are a few stretches, narrow and heavily wooded, that play havoc with the backcasts of the unwary, but MacTavish negotiated these places beautifully, losing very few flies. He was opposed by instinct, or so I guessed, to the loss of tackle under any circumstances.

But one pool was designed by nature to protect its trout and to try the patience of every saint and sinner who attempted to put a fly on it. Strictly speaking, it wasn't a pool but a long deep run of dark water, coiling through and under a labyrinth of branches. A wide-limbed oak had fallen in a cyclone of a bygone summer and carried with it three smaller trees that grew near the water. The windfalls lay directly across the stream; the resulting

tangle had become a repository for the tippets and flies of the rash anglers who tried to fish that interlaced water. The Graveyard Pool, we used to call it.

It was a trout hangout, and it tempted me for a couple of seasons. But after I'd lost a lot of terminal gear in there I decided that there are some places I'd better leave alone.

Mr. MacTavish came eventually to this place. I had left him downstream, walked up-river to a point a little above the Graveyard Pool to begin my fishing. After awhile I went back to find him.

He was there at the Graveyard, crouched in the shallow water of its lip, downstream from the lower edges of the tangle. Well back on the bank, I surveyed the scene. One of the smaller tree trunks, well fitted with branches, lay athwart the current 25 feet upstream from MacTavish. A short length of the trunk was under less than an inch of water, and a branch hung with twigs arched in a semi-circle above it. Under the hanging twigs was an opening a foot high. As I watched, I saw a large trout rise in a tiny circle of open water beyond.

MacTavish was aiming a fly at that rise, lengthening line with false casts right up to the opening under the branch, with the manifest purpose of shooting through it. Maybe he could hold that fish, if ever he hooked him, by getting him downstream at once, over the trunk and into the clear. There was no other way.

I held my breath as he shot the fly into the opening. But the tippet fouled in the low twigs and the fly was snagged.

"Maybe," I said, "if you'd cast below the trunk he'd come into the clear for it."

He looked up and saw me. "Tried it a dozen times, and he wouldn't budge. So I'm goin' after 'im where he is. That's the last o' twelve Quill Gordons, if she won't come loose." She wouldn't. MacTavish applied force, leaving one more fly and tippet for the Graveyard.

He declined my offer of Quill Gordons. The fish was taking a gray fly, he said, and he would start on his dark Hendricksons, of which he had eight. In half an hour, while the trout still rose occasionally in the little pocket, MacTavish lost all the dark Hendricksons to the trunk or the branches.

Six light Hendricksons went the way of the others; then one cast got beautifully and triumphantly through the opening and settled lightly on the exact spot of the rise. The fish had it at once; MacTavish tried to steer him downstream, across the trunk, but the trout knew better. He went deep into the tangle, and the Graveyard had still another fly. MacTavish's little show was over.

I suggested that if he waded in up to his neck, or took off his clothes and swam, he could retrieve a lot of that stuff. He snorted in disdain. "An' skeer that troot awa' for a week, maybe, splashin' around. Nay, mon, let's keep 'im quiet f'r th' next angler. . . . Say, dinna ya breathe a worrud o' this t' ma missus."

There were other fish in the stream, in easy water, but here in a tough place \$12 worth of gear was sacrificed in an hour to the stubbornness of a man whose breed is noted for its frugality.

Do you call that Scotch? Maybe it isn't, but it's the way even a Scotsman can act when he's working over a rising trout.

I can recall others whose normal personalities seem taken apart by trout water and trout fishing. An artist I fished with years ago was as sketchy a character as you could find in a day's march. His clothes were perennially unpressed, his insurance policies used to lapse because he forgot the premium dates, his studio was a magnificent disarray of the tools of his trade.

BACKCASTS

What trout fishing can do to a man

By Edward T. Walden, II

Author of "BIG STOUT" and "UPSTREAM AND DOWN"

(The Macmillan Company, New York)

But on the stream this man of loose ends became all at once a systematic angler, a fisherman with a certain pocket for each item of gear, a careful and finicky stalker of rising trout, a student of sun and shadow and the idiosyncracies of currents. And this reverse side of his personality carried over to his tackle room at home. Here the rods were neatly stacked, the waders hung upside down on forms. Never was a wet rod put away before being wiped dry, nor a line left to get kinky on a reel.

Other men confirm the strange pattern of dualism. One of the best surgeons in the world, a man who is errorless at his operating table, occasionally blunders up and down our home waters, flailing the air with his rod as if he were whipping a recalcitrant mule, splashing his flies upon the still pools, wading hither and yon like a hippopotamus wallowing in the Congo, snagging every branch along the banks, creating uproar where quiet should always be. But watch him clean a trout and you get a hint of the way of a surgeon's hands with a knife, and you think of the genius in the fingers that can probe so surely and delicately, with precise little instruments, into touchy areas of the human body.

An industrialist with a success complex once came up to fish with us. He had fought his way up the long slopes of a great corporation to seat himself eventually at the top. There was a deep urge for power in this fellow; it showed itself in a stiff-jawed arrogance, a clipped precise speech and a way of making snap judgments on any question that arose. But he surprised us all with his humbleness before nature. He would fish a little while—he wasn't very good at it—and then find a rock overlooking the water where he would sit and smoke a big pipe and contemplate this sylvan peace so far and so different from the clatter and grime of his plant. Once he did take a distinguished trout, which he very carefully freed from the fly and returned to the water. "I had no right to him," he told me, humbly, "the way I fish."

Two other men, in my fishing memory, invariably let their trout live. One was an ex-Army officer, who had known the sight of blood and death

for long months in France, in the first World War. The second was a professional ball player who had a reputation for toughness, a guy whose spikes were feared on the basepaths. His philosophy as to trout he once expressed to me: "They're just too dammed beautiful to kill."

The transition from work to play is perhaps not complete in some men without an accompanying change of character, a shucking off of the normal personality as a nymph shucks its case when hatching from the stream. It is my aim here to report examples, not to attempt an explanation. Obviously you can prove it the other way, for we all know men who are *in* character always, anywhere they may be.

Once, to my knowledge, this strange reversal of form reached into even the emotionally disciplined ranks of the clergy. The minister we fished with that year was devout a soul as ever wore the cloth.

He was a young chap, lean and hard, fond of tennis and trout fishing and pretty good at both. But he was human and he had his off days. I have seen him lose tennis matches to inferior players because he double-faulted too often or because his backhand was letting him down. Some men swear and throw their rackets at the backstop when their game goes similarly sour. Not he. I never saw his good nature leave him on a tennis court; never knew him to be anything but gracious to an opponent.

It remained for the demons who preside over the trout waters to curdle this benign and godly character. A wary old brown trout, one I had tried for several times that season, was rising again in his favorite haunt, the shallow lip of a long pool. It was a glassy piece of water, a difficult place to fish a dry fly. A fast deep run boiled just below it; on an upstream cast (the only way you could work it) your line would be partly in this swift water and the drag would catch your floating fly at once. You had to throw a little slack; that way you'd get a natural drift for two or three seconds before the drag asserted itself.

The minister crouched at the edge of the swift run, measuring the distance with false casts to the glide above. As the trout rose again the

minister's backcast hung up in a bush 30 feet downstream. A stout "damm," audible above the sound of the water, was the first unclerical word I ever heard him utter.

Only the one-syllabled oath. He smiled as if to redeem his lapse of professional conduct and freed the snagged fly. His next cast was almost perfect, not quite enough slack, but the fly achieved a brief undisturbed drift before the drag brought it against a rock in the middle of the glide.

The fly was firmly caught in a crevice of the rock and the trout rose again, very close, as if investigating. "Gaddammit," I heard the minister say. He eventually had to resort to the straight pull that breaks the tippet.

We sat for fifteen minutes, resting the water. The minister apologized for his double offense with cusswords, and after awhile the trout showed again. "Now," I said, "careful as you can."

His cast was a gem, as if the Lord were rewarding his contrition. The trout took the fly before the drag had time for its dirty work, and the reel sang as the fish bored upstream. It turned and came back, charging through the lip of the pool into the fast deep run below. Thigh-deep in the current, the man of God went downstream with his fish, tired it out at length, brought it to net and lifted it clear, 16 inches of golden-bellied, red-spotted Fario.

But as he turned to go ashore he slipped on a smooth stone, lost his balance and went down, with rod, net, fish and all. And when he came up into the air again, snorting and blowing, the net was empty. The minister stumbled to the bank, stood straight and dripping, with his arms lifted, and shouted to all outdoors: "Gadammit to hell!"

It had been one of those fishing miracles, he told me afterward. The trout had been lip-hooked; the fly and the pressure had worn a hole in the membrane, and the fly had come free at the moment the trout was netted and the pressure eased. "I am sincerely sorry," he added, "for those outbursts."

I told him I thought his chance of salvation was reasonably good. A truly just and understanding God would make allowance for what trout fishing can do to a man.

Nymphing

By George Harvey

Associate Professor Penn State College

NYMPHING is a technique of angling that is considered by most fishermen as one only for the expert. Don't believe it! If you have ever taken a trout on the old reliable wet fly, you are a nymph fisherman yourself.

I will admit there are many variations insofar as techniques are concerned and in their use some individuals are more proficient than others, but there is nothing new.

Some of the methods that have received the most publicity and attention are nothing more than glorified bait or worm fishing. I know, because I have done as much to publicize some of these methods as anyone in Pennsylvania.

When I first worked at Fishermen's Paradise on Spring Creek, Centre County, Pennsylvania, nymphs were seldom seen and rarely used. Prior to that time I had been having considerable success with some creations that

had some semblance to the naturals. Most of the nymphs I used were tied with dubbed fur bodies, but quill, particularly stripped hackle quill, was used quite often. With these nymphs fished mostly on the bottom, "they floated practically the same as a worm," I could usually take trout any time I wished. Anyone who fished the Paradise during the years 1935, '36 and '37 knows just what I mean!

It wasn't long until this supposedly new type of fly was in demand and everyone began to fish all types of flies—wets, dries and streamers—on the bottom, floating them as one would a worm. However, I take no credit for the method that seems to have taken over on this famous water. It is disgraceful the way some so-called anglers have deviated from the original method in the Paradise today. All they do is allow the fly to settle to the bottom and then *strike*. This is not nymph fishing; it is grappling or snagging, and anyone caught deliberately employing this method should be subject to the same penalty as one caught grappling with a burr hook.

About 1935 I introduced many smaller nymphs. Many probably represented midge larvae; at any rate, they were and always will be real fishtakers. In recent years, I believe I've had better success with the smaller creations, possibly because they are used less than the larger nymphs.

Regardless of how one fishes the nymphs or wet fly, versatility in choosing the method is very important if one is to be successful. Usually some

method will work if the fisherman has enough good common sense to figure it out.

Before we go into the discussion of the actual methods, let us remember that a nymph may be taken by trout on the bottom, any place between the bottom and the surface, and on the surface of the water!

I am not going to waste time and space discussing the best equipment to use. One sentence will suffice. Use as long and as finely tapered leader (9 to 10½ feet) as you can handle under existing conditions. This is the most important part of your tackle.

As our first method, let's discuss what most anglers call nymphing—the deep method. This is without doubt the most difficult way to fish a nymph correctly. Yet, under many conditions, it is the best method of taking big fish. All nymphs from No. 8 to No. 22 are good at times but generally I have a decided preference for the smaller sizes, simply because they are usually the most productive for me. This method calls for some weight to be added either to the nymph or leader. Some prefer the weight to be tied in the body of the nymph but I personally do not care much for any weighted fly. They "hang up" much more readily and do not have the action of the unweighted fly. I add weight directly to the leader, usually pinching on a split shot eight or ten inches above the fly. This way the shot bounces along the bottom and the nymph (being more bouyant) usually rides just above the bottom, resulting in fewer snags.

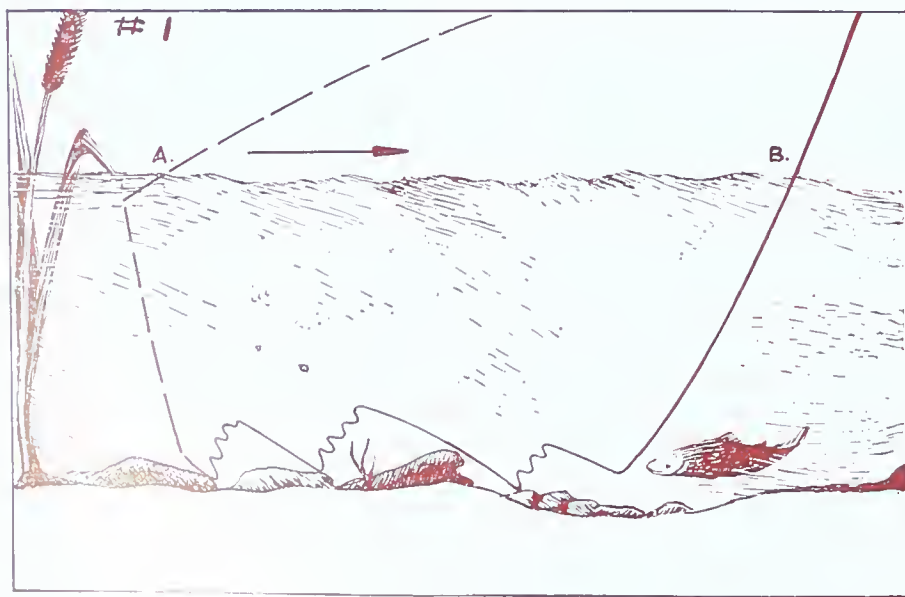


Diagram No. 1

Deep Method—A represents point where fly enters water. Zig zag line represents twitching fly when sinker strikes bottom. B represents point where fly is lifted from water.

I like to pick my water carefully for this deep method. I prefer deep runs (riffles or glides with enough force to carry the nymph along. I cannot fish this method successfully if I use too long a line. About 30 feet is the maximum for me and closer than that most of the time. With too much line my sense of touch is lost and I do not know how my nymph is behaving.

I prefer to be in a position where I can cast diagonally up stream with a slack line so that the nymph will settle quickly to the bottom. As I feel the split shot touch the bottom, I lift and twitch the rod tip just enough to keep the nymph moving. The rod tip should always be ahead of the drifting line and the line should be kept as taut as possible between the nymph or shot and the rod tip.

In clear water, trout may strike quite

viciously. In fact, on many occasions, I have had the rod nearly taken from my hand by the strike. Generally, however, the fly merely stops as the trout picks it up or sucks it in. With very little experience one can easily tell the difference between a snag and a strike. In fact, it is usually possible to lift the rod tip gently when the line stops unnaturally and strike when you feel movement. When one fishes this deep method correctly, as any sportsman should, it is rare that a fish will be hooked illegally. Diagram No. 1 will illustrate this method.

Method number two no doubt represents nymphs that are emerging or are being carried along by the current. Here many different retrieves are used. Sometimes a series of slight twitches of the rod tip will suffice, other times decided jerks of a foot or two will be necessary. In either case one must manipulate the rod so as to "swim" the nymph with a steady undulating movement. Sometimes the nymph is best fished fairly deep, another time near the surface, depending entirely at what depth the fish are feeding. Here versatility is of prime importance.

One may use this method on any type of water, riffly, smooth glides or runs and in absolutely still springs, ponds or lakes. Many times, particularly in lakes and ponds, one must reach the correct depth or else go fishless (water temperature sometimes governs this). On many occasions I have taken trout as fast as I could sink a fly to the desired depth, while others fishing the same water would be unsuccessful or would accidentally allow the fly to sink deep enough and catch an occasional trout. Counting from the time the fly strikes the water until it reaches the productive depth is usually the easiest way to determine the correct depth to fish.

The third method, and one that I have used successfully for over 20 years, is really dry-fly fishing with a fly tied resembling a nymph. The nymph of many species of May flies swims to the surface, takes in air and floats on the surface until the thorax splits and the dun emerges. When this hatch of duns is occurring trout many times will be dimpling the surface and unless one is very observant, may mistake the rises to be to the dun. However, quite frequently (more so on limestone than freestone streams) trout are very selective, taking only the

nymphs and passing up the dun. I don't know why, but I do know that when this happens and one has a nymph that has some semblance to the natural, you may take trout with comparative ease.

Back in 1937 I wrote an article for the *ANGLER* about nymphing and suggested at that time the possibility of tying a bouyant nymph for this type of fishing. Since that time I have done just that and can now report that they are more successful than I at first thought possible. The only drawback is that they take considerable time to tie and I cannot keep my own fly box

stocked let alone tie any for other fishermen.

The floating nymph is fished just the same as the dry fly. Sometimes action is needed, particularly in still water. The only difference is that the nymph on many occasions is far superior to the dry fly even if no selectivity is shown by the trout.

I hope that with this brief discussion on nymph fishing, I have broken down the barrier that has kept so many fishermen from trying nymphs. Remember . . . if you have ever fished dry or wet fly you can fish nymphs!



Diagram No. 2

Down Stream Method—A represents point where fly enters water. Zig zag line represents the retrieve. B represents point where fly is lifted from water. C represents point where fly enters water and shows the depth that fly is fished. The longer zig zag line represents a slower and longer retrieve. D represents point where fly is lifted from water.

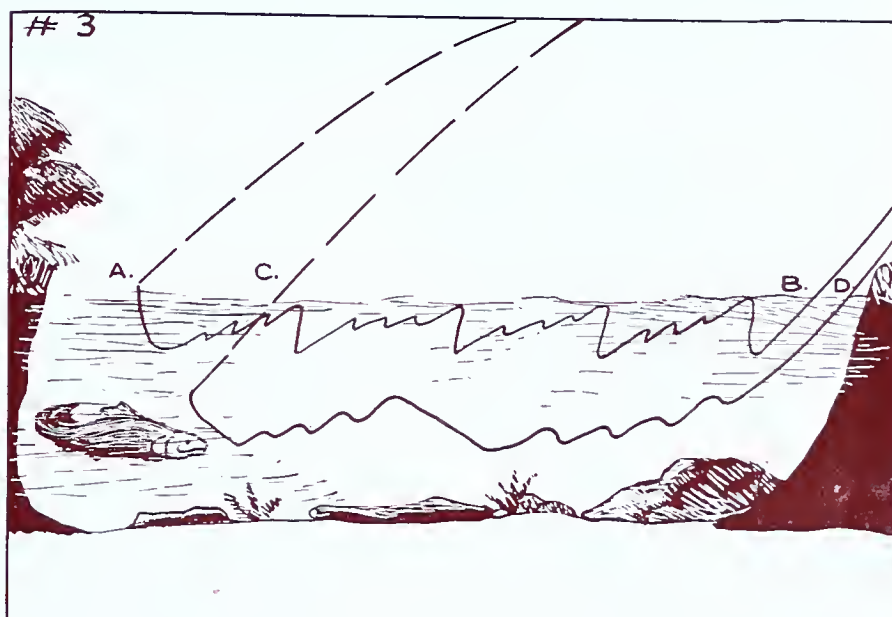


Diagram No. 3

Method of Fishing Quiet and Still Water—A and C represents point where fly enters water. B and D represents point where fly is lifted from water. In these two methods it is important to keep the fly at the desired depth at all times during the retrieve.

COMMISSION'S HATCHERIES AID IN FISH RESCUE WORK

By Merrill Lillie,

Superintendent, State Fish Hatchery, Corry, Pennsylvania

One of the interesting duties falling within the scope of hatchery work is salvaging fish from reservoirs and dams that must be drained for cleaning, repairing or for other reasons. These water areas may vary in size and nature from a small beaver dam to a large city reservoir. The fish removed in these operations are hauled to the hatcheries where they are sorted and held in ponds for future distribution to suitable waters.

A spirit of adventure prevails on these trips since one never knows just what to expect. In addition to the usual gear for handling fish, the salvage crew must also be prepared to take care of snapping turtles and the other interesting creatures which appear in pond bottoms. Often a little-known pond will produce a good crop of fish, whereas one reported to be "teeming" with fish may yield almost nothing when drained. Unfortunately many people still look upon ponds as the final resting place for any unwanted article. If you would like to test your patience sometime try pulling a seine along a pond bottom littered with barbed wire, broken bottles and old automobile parts.

Beavers have a habit of building dams where they are not wanted by landowners and sometimes their dams must be removed to prevent flooding of valuable timber lands. Over the years, beaver dams have provided fish rescue crews from the Corry Hatchery with plenty of work. The results of some of these trips show the great diversity in fish populations which may be expected.

In one case a landowner drained a beaver dam, not realizing there were any fish in it nor that he had to have a permit for the draining. That evening a warden on patrol noticed a large number of fish splashing around in a small pool of the pond that did not entirely drain. The next morning we removed 40,000 bullheads as well as many crappie bass and sunfish. Here was good fishing wasted, as neither the owner nor his neighbors knew there were any fish in the pond.

By way of contrast, the only aquatic life found at another beaver dam was

frog tadpoles. Conditions here were ideal for frogs and they really took advantage of it.

In 1948 we were notified to remove the fish from a five-acre beaver dam in Erie County. The dam was in a heavily wooded area about one-fourth of a mile from the road. The report was that there were thousands of little fish swimming near the surface of the water. We took two of our large transportation trucks, a crew of six men, and all the equipment that we thought would be needed. We drove the trucks as near to the water as possible and proceeded to rescue the fish. The fish turned out to be sticklebacks. In making a short haul with a twenty foot drag seine, we caught over a bushel of these spiney little fish. The only fish in the dam of any value for restocking purposes were a few suckers.

One job that really paid off was an eighteen acre abandoned water company reservoir which had to be drained as the dam was unsafe and represented a flood hazard. Fourteen double tank loads of bass, bullheads, pickerel, yellow perch, sunfish and golden shiners were hauled to the hatchery. This represented a lot of hard work as all the fish had to be carried in wash tubs up a high embankment to the trucks. Several feet of mud in the bottom of the pond and warm weather added to the difficulties.

The next time we are called on to do rescue work, who knows what the conditions will be or just what we will find? The only way to find out is to go prepared and have a look.

Northeast Division American Fisheries Society Meets in West Virginia

Pennsylvania's sister state, West Virginia, can well be proud of her part as hostess in the recent meeting of the Northeast Division of the American Fisheries Society. Mr. A. E. Seaman, Chief, Division of Fish Management, West Virginia Conservation Commission, presided. The meeting was joint with the Northeast Districts of the Wildlife Society and the International Association of Game, Fish and Conservation Commissioners. The meeting was held at Jackson's Mill, West Virginia, April 1-4, 1952.

Notable progress was made at this meeting in the very valuable interchange of ideas on fish research, management and fish culture, between state and other conservation agencies of Northeastern United States and Canada.

Pennsylvania took active part in certain of these discussions and Gordon L. Trembley, Chief Aquatic Biologist of the Pennsylvania Fish Commission, was elected chairman to serve at the next annual meeting to be held in New Hampshire in October, 1953.

It is hoped that in the next meeting the Pennsylvania Fish Commission will be prepared to contribute one or more technical papers on findings from our growing research program designed to promote better fishing.

Representing Pennsylvania at this meeting were C. R. Buller, Chief Fish Culturist; Gordon L. Trembley, Chief Aquatic Biologist; Arthur Bradford, Pathologist; DeWayne Campbell, Fisheries Biologist; and Otis Robbins, Fisheries Biologist. These persons are all of the Central Field Office in Bellefonte.

LARGE TROUT CAUGHT ON 1952 OPENING DAY AT FISHERMAN'S PARADISE

Men

Andy Repko, Portage	Brown	27"	7 lbs.
Ralph Keefe, Hastings	Brown	25"	5 lbs.
Joseph Boudou, Portage	Rainbow	21½"	3 lbs.
Paul J. Lindsey, Dauphin	Rainbow	21"	3 lbs., 14 oz.
Duane Kerr, Punxsutawney	Brown	23½"	5 lbs., 7 oz.

Women

Margaret A. Wagner, Lewistown	Brown	23½"	76 oz.
Mrs. Edna Mills, Altoona	Brown	22"	70 oz.
Vivian McVicker, Stoyestown	Brown	20"	56 oz.
Mrs. Helen Peterson, Milroy	Rainbow	18½"	37 oz.



C. A. French, Executive Director, Pennsylvania Fish Commission turns first shovelfull of earth to officially commence construction of Benner Spring research project. On right are: Cy Regan, Chief, Div. of Land and Water Acquisition; Dewey Sorenson, Supt. Bellefonte Hatchery and C. R. Buller, Chief Fish Culturist.

\$500,000 RESEARCH PROJECT UNDERWAY

Executive Director, C. A. French Breaks Ground on New Research Station at Benner Spring

Executive Director, C. A. French launched a most cherished dream when he broke ground recently for the new half-million dollar fisheries research station at Benner Spring, Centre County.

Designed for experimentation to improve fishing in the Commonwealth, the project will cover 43 acres and extend over a mile in length, and will be one of the nation's largest research laboratories.

The immense project when completed will be used for biological studies of Pennsylvania fishes and serve as the center of the Commission's fish management and research program. Foremost on the program will be the development of larger and better strains of trout for stocking purposes. To accomplish this, principles of inheritance will be applied the breeding of fish.

Thomas F. O'Hara, Chief Engineer for the Fish Commission has designed a unique system of construction and water supply to fit the needs of the new station. He expects some of the experimental ponds to be ready for use in the fall, the over-all building program complete within two years.

The Fish Commission appointed Gordon L. Trembley, as Director of Research. Mr. Trembley, currently serving as Chief Aquatic Biologist, has had more than twenty years experience in fisheries work. He will supervise the work of a staff of trained biologists. Dr. James E. Wright, Associate Professor of genetics at Pennsylvania State College has been retained as advisory geneticist.

Benner Spring, site of the new project, is located on famous Spring Creek immediately above the nationally known Fisherman's Paradise. The spring will supply most of the water for the new station at the rate of 8,000 gallons per minute. Both quality of the water and location are ideal for the type of research planned.



VETERAN WARDENS RETIRE



Harry Z. Cole



George H. James

Two veteran wardens of the Pennsylvania Fish Commission's Enforcement Division have recently retired from active duty. They are: Harry Z. Cole, Norristown, Pa., with the Commission since June 1, 1935, retired April 30 and George H. James, Carlisle, Pa., who retired May 15th. Mr. James, oldest warden in years of service, first came with the Commission on May 1, 1924.

The PENNSYLVANIA ANGLER and their many sportsmen friends throughout the state warmly congratulate both gentlemen on their long and faithful service and a job well done.

Excerpts from the Minutes of the Meeting of the Pennsylvania Fish Commission Held March 31, 1952

NEW WARDEN

Thomas B. Karper, 226 Chain Street, Norristown, Penna., was appointed as the regular warden for Montgomery and Bucks Counties to fill the vacancy caused by the resignation of Harry Z. Cole because of illness. Mr. Cole has had 17 years service with the Commission.

NURSERY WATERS

The following areas were set up as nursery waters for a period of one year:

CAMBRIA COUNTY—Project of Cambria County Game Protective Association covering one pond fed from Trout Run located in the town of Puritan and owned by the Portage Water Company and one pond fed by Piper Run and owned by Dr. Benko.

CLINTON COUNTY—Section of Main Kettle Creek below State Forestry Dam for a distance of 200 yards from the breast downstream.

LANCASTER COUNTY—Donegal Nursery located in East Donegal Township, Lancaster County. Request of Mount Joy Sportsmen's Association.

Commonwealth of Pennsylvania
Pennsylvania Fish Commission

CHAPTER 2

REGULATION 206—

SPECIAL STREAM REGULATIONS— INLAND WATERS

But authority of the Act of May 2, 1925, P. L. 448, Section 251. Penalties for violation as provided by the Fish Laws.

*Waters Having Special Regulations
Effective for a Period of Two
Years Dating from April
1, 1952*

Fishermen must be guided by rules and regulations posted along streams regarding size, season, number, lures, etc.

SLATE RUN (Lycoming and Tioga Counties)

Special regulations applicable to the entire stream of Slate Run beginning at its source which is formed at the junction of the Francis and Cushman Branches in Elk Township, Tioga County, and extending in a southwardly direction a distance of approximately one fourth mile into Brown Township,

Lycoming County, continuing in a southwardly direction in Brown Township, a distance of approximately seven and one-fourth miles to a point where it empties into Pine Creek, opposite the town of Slate Run, Brown Township, Lycoming County.

YOUNG WOMAN'S CREEK (Clinton County)

Special regulations applicable to Right Branch of Young Woman's Creek, including all of the Main Section of the Right Branch from its confluence with the Left Branch to and including the pool under Moo Hollow Bridge, a distance of approximately seven (7) miles.

ROCK RUN (Lycoming County)

Special regulations applicable to stream from the town of Ralston upstream to Yellow Dog Branch, a distance of six (6) miles.

The rules and regulations covering the three above named streams are as follows:

Season and hours. These streams may be fished only from April 15 to July 31 inclusive between the hours of 4:00 A.M., E.S.T., except April 15 when the season does not open until 5:00 A.M., E.S.T., and 9:00 P.M., E.S.T.

Permissible lures. Only the following lures may be used on these streams:

(a) Artificial flies usually made of hair or feathers or similar material with a single point barbed or barbless hook.

(b) Live bait with a single point barbless hook.

Note: this excludes all types of artificial lures made of wood, metal, plastics, etc., and all types of lures containing more than a single point hook. It also excluded all types of spinners or spinner attachments or any other lures not mentioned in (a) or (b).

Devices. No person shall use any device or method whatsoever for taking fish from these waters, except by use of one single rod and line to which is attached not more than one single pointed hook as permitted above.

Daily limit. It is unlawful to catch and take by angling in these streams or to possess while angling thereon or in the immediate vicinity thereof, more than six (6) trout in any one day.

Minimum Size. All trout caught and taken from these streams had in possession while angling thereon or in

the immediate vicinity thereof must be at least nine (9) inches in length.

"Bait-fish" or "fish-bait". It is unlawful at any time to catch or take "bait-fish" such as minnows, killifish, etc., and "fish-bait" such as crawfish, known as crayfish, crabs, crane flies, water-worms, mussels and hellgrammites, etc., from these waters by angling or otherwise.

Prima facie evidence. In all cases of arrest for the violation of any of the provisions of these regulations the possession of the fishes or of the nets or appliances or the possession of, or operation of any device herein prohibited shall be prima facie evidence of the violation of these regulations.

These rules and regulations will be strictly enforced. Your strict observance thereof will not only avoid penalties but also assist the experimental program of the Pennsylvania Fish Commission designed and intended to improve fishing on these streams.

You are requested to refrain from using live minnows so that undesirable species will not be introduced into these streams.

When releasing trout, run your hand down the line of the fish under the water and hold it by the lower check between the thumb and forefinger while removing the hook. This will save many small trout. **BE A SPORTSMAN**—observe these regulations and help make fishing better for yourself and your fellow anglers. If you would catch more trout you must kill less.

DUNBAR CREEK (Fayette County)

Special regulations applicable to stream beginning at a point above the Dunbar Corporation Dam to the headwaters.

The rules and regulations on this stream are as follows:

Season and hours—Fishing permitted on this stream only from April 15 to July 31 inclusive, between the hours of 4:00 A.M., and 9:00 P.M., E.S.T., excepting April 15 when the hours shall be from 5:00 A.M. to 9:00 P.M., E.S.T.

All fishing limited to artificial fly or lure—No bait fishing permitted. Fishing with or possession of any live bait, angle worms, meat, or any other live bait is a violation of the rules and regulations.

Number of trout taken in one day limited to five (5).

Number of trout per man per season—twenty-five (25).

Legal minimum size limit—eight (8) inches.

All tributaries closed to fishing at all times.

NORTH FORK CREEK (Jefferson County)

Special regulations applicable to that portion of North Fork Creek, Jefferson County, from 2000 feet below Egypt Bridge to the source.

The rules and regulations on this stream are as follows:

Fishing permitted only from April 15 to July 31st, inclusive, between hours of 5:00 A.M., and 10:00 P.M., E.S.T.

All fishing limited to rod and line only.

Daily creel limit for one day limited to five (5) trout.

Legal minimum size—seven (7) inches.

No restrictions as to the kind of bait or lures used. (New posters provide for artificial lures only.)

SPRING CREEK PROJECT (Warren County)

Special regulations applicable to Spring Creek, Warren County, which flows through what is known as the Clough Property.

The rules and regulations on this stream are as follows:

Fishing permitted on this stream from April 15 to July 31, inclusive, between the hours of 5:00 A.M., and 9:00 P.M., E.S.T.

Fishing on dates other than specified above is prohibited.

Only artificial flies or lures may be used for catching fish.

Fishing with, or having in possession while fishing this stream, any live bait, angle worms, meat, liver, preserved bait, or any other bait, is a violation of the rules.

Daily creel limit of trout is limited to six (6).

Legal minimum size limit for trout is eight (8) inches.

HARMONY ZELIENOPLE SPORTS CLUB LAKE (Butler County)

Special regulations applicable to this lake located in Jackson Township, Butler County.

The rules and regulations on the lake are as follows:

Number of bass to be taken in any one day limited to four (4) not less than 12" in length.

BROADHEADS CREEK (Monroe County)

Special regulations applicable to approximately 3½ miles of this stream from Stroudsburg Water Company Dam to Penn Hills.

The rules and regulations on this stream are as follows:

Fishing is permitted on this stream between the hours of 4:00 A.M. and 10:00 P.M., E.S.T., from April 15 to July 31, inclusive, excepting April 15

when the hours shall be from 5 A.M. to 10 P.M., E.S.T.

All fishing limited to artificial fly or lures.

Number of trout taken in one day limited to six (6).

Legal minimum size limit—eight (8) inches.

BUSHKILL CREEK (Monroe County)

Special regulations applicable to Bushkill Creek, beginning at a point just below Reseca Falls on Route 402 for a distance of 500 feet.

The rules and regulations on this stream are as follows:

Fishing is permitted on this stream between the hours of 4:00 A.M. and 10:00 P.M., E.S.T., from April 15 to July 31, inclusive, excepting April 15 when the hours shall be from 5 A.M. to 10 P.M., E.S.T.

Number of trout taken in one day limited to six (6).

Legal minimum size limit—eight (8) inches.

NORTH SANDY CREEK (Venango County)

Special regulations applicable on this stream from Route 62 in the vicinity of Polk in a northwardly direction for a distance of approximately one (1) mile.

The rules and regulations on this stream are as follows:

Fishing is permitted on this stream from April 15 to July 31, inclusive, between the hours of 4:00 A.M., to 9:00 P.M., E.S.T., excepting April 15 when the hours shall be from 5 A.M. to 9 P.M., E.S.T.

All fishing limited to artificial fly or lures.

No live bait allowed in possession.

Number of trout taken in one day limited to six (6).

ALL STATE FISH HATCHERIES

The rules and regulations governing visitors at State Fish Hatcheries are as follows:

Hours—7 A.M. to 5 P.M., Eastern Standard Time.

No fishing tackle can be carried on hatchery property.

Machines of all characters must be kept on the driveways.

Picking the flowers or shrubbery is forbidden.

Paper, remnants of food, or trash of any kind must not be thrown about the grounds or buildings.

There must be no tampering with the water appliances or fish.

RESOLUTIONS ON FISH APPROVED AT FEBRUARY 1952 MEETING OF THE FEDERATION OF SPORTSMEN'S CLUBS

1. WHEREAS: the crawfish or crab

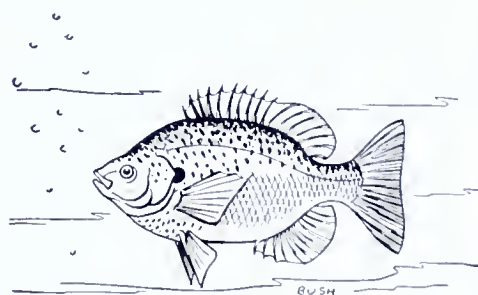
supply in many of our streams is becoming nearly depleted due largely to the destructive method of seining them, and WHEREAS: this method is furthermore destructive to other forms of aquatic and plant life in streams, and WHEREAS: a less destructive method of procuring fish-bait should be encouraged, Now therefore BE IT RESOLVED: That hand-picking of all species of fish-bait be permitted in all inland waters of the Commonwealth of Pennsylvania.

It was agreed that the Fish Commission favor legislation to this effect 2.WHEREAS: the Fisherman's Paradise on Spring Creek was originated as an educational project for the purpose of instructing novices in the sport of fishing; NOW THEREFORE BE IT RESOLVED: That a portion of the Fisherman's Paradise be set aside as an instructional area, where fishermen may instruct and actively assist beginners in the handling of tackle and fish. Provided nevertheless that no fish taken from this area be killed.

Due to the pressure on the Fisherman's Paradise it is difficult at this time to set aside a portion of the stream for this purpose. However, the matter will be given consideration.

3. WHEREAS, a dam on the Game Lands in Dyberry Township, Wayne County, which formed a lake known as "Lower Woods Pond" has failed and should be restored, RESOLVED, that the Fish Commission be requested to cooperate with the Game Commission with the view to restore said dam, FURTHER RESOLVED, that the dam and pond when restored be named in honor of the late Dr. C. A. Mortimer, the first Secretary and one of the Founders of the Federation, "The Dr. C. A. Mortimer Memorial Lake."

It was agreed that as soon as possible the Executive Director talk this over with the Commission's engineer and also get in touch with the Department of Forests and Waters and the Game Commission and find out what the estimated cost would be to restore this dam.





▲ Wounded veteran Pfc. Kenneth Richmond, Scottsville, Ohio displays catch to Col. Welch, Commanding Officer, Mrs. and Dr. J. E. Gotwals.

▼ Veterans await zero hour for angling as trout are stocked from Fish Commission trucks. Participating in stocking are: (L-R.) Sgt. M. L. Islow, Phila., Pa., Cpl. Alfonso Durant, Phila., Pa., Cpl. Ed Grey, Portland, N. Y.



Fish Commission Stocks Valley Forge "Paradise" for Korean Casualties

Dr. and Mrs. J. E. Gotwals, of Phoenixville again turned over their pond at Kimberton this year to trout fishing for Korean casualties recuperating at Valley Forge Hospital. The Fish Commission stocked some big ones, the veterans, on crutches, wheel chairs, angled to their heart's content. The same project was carried on for the wounded of World War II from 1945 to 1949. Fishing tackle used is donated largely by individuals and organizations interested in the project.

▼ Successful angler Pfc. Geo. Edwards, Pittsburgh, Pa., lands nice fish without difficulty from his wheel chair.



PENNA'S FISHERIES PROBLEMS *(Continued from Page 5)*

major trout streams of the Commonwealth. All of this is being done always with the thought of providing the wholesome recreational sport of fishing for the present and future generations.

Formerly many of those interested in the conservation of hook-and-line fishing in Pennsylvania felt that stocking of fish was all that was required to improve and perpetuate this sport. Without a doubt, the growing and stocking

of fish in the state fish hatcheries has a very great place in this work; however, there are many other factors involved. The Fish Commission's corps of aquatic biologists and other technicians are constantly studying the waters of the state and setting up from their findings comprehensive management schedules for these areas. These management plans may call for the removal of certain kinds of fish that might become

overabundant or stunted, for the increased stocking of certain kinds of fish, for the curtailment of stocking of other species, and in some few instances it has been recommended for a period of time that all stocking be discontinued. Studies are made on smaller waters in metropolitan districts where little thought is given to the interdependency of different kinds of fish upon one another for their well-being, and the areas are stocked heavily with various kinds of mature fish on a so-

called put-and-take basis. A management program also makes an extensive study of trout waters so that the trout will be planted where the angler receives the best returns for the money invested in the crop.

The indiscriminate planting of fish can and does do a great deal of harm to the fisheries management program of the state; and to help prevent this, the United States Fish and Wildlife Service cooperates wholeheartedly by submitting for the approval of the Pennsylvania Fish Commission all applications for federal fish that are requisitioned for Pennsylvania waters. This requires considerable time on the part of this state agency but in the end proves worthwhile in furthering the present fisheries management program.

Thoughtless acts of anglers

often cause dismay among fishery technicians. The fishermen try to remedy the natural problems of a water area with the indiscriminate stocking of fish which they have legally taken by hook-and-line from other sources. They do not know or do not stop to think that each water area is an individual and requires individual needs just as do certain fields or certain farms. The only weapon that is at the Fish Commission's disposal to counteract these damaging practices is education.

Pennsylvania's 52 fish wardens are the Commission's local representatives in the field. It is the duty of the fish wardens not only to enforce the law but also to assist with management plans, to attempt to maintain open fishing waters, to act in the interest of the best public relations, and to furnish pertinent facts to the

Central Field Office concerning any problems arising in the field.

Last, but not least by any means, is the operation of the ten state fish hatcheries that produce annually over 400 tons of fish for stocking the approved public waters of the Commonwealth under the management program. The trout program is largely a matter of growing big trout and planting them with the thought of their being captured within a short time. With the so-called warm-water fish, in many instances stocking is done with the thought of assisting what Nature is doing.

Increased fishing pressure is creating additional fisheries problems; but with the progressive, long-view program of the Pennsylvania Fish Commission, it is felt that this great sport will be expanded and improved.

TIPS ON SPINNING TACKLE *(Continued from Page 15)*

and for anglers who are inclined to treat tackle roughly.

There is an ideal length for every power of rod. Note that I say "power" because actual weight is very misleading. In selecting a rod, hold it rigidly at the grip and oscillate the tip from side to side. The action should be felt way down into the grip. The rod will cast better if the butt section is not too stiff. Next, try a false cast with the rod, stopping the cast quickly. The tip should come to rest with a minimum of tip-quiver. If the tip wobbles excessively, the rod is too light in the tip and will not cast as accurately as it should.

Guides should be relatively large, light and strong. They should be graduated in size from butt to tip to give the appearance of a cone when one looks through them. The butt guide of a fresh water rod should be between an inch and an inch and a quarter in diameter (depending on the size of the rod), with each forward guide graduated smaller.

Grips are handiest when they are longer than normal, as shown in the

illustration. This added length allows the lower part of the butt to be rested against the forearm while working the lure. A rubber butt cap is extremely handy because (combined with the longer grip) it allows the rod to be rested against the stomach when pumping in a fish. Lacking such a grip, one's wrist can get very tired after a day of successful fishing. With it, there is no wrist fatigue, no matter how many fish are handled, or how big they are.

The rings (or bands) should fit the grip rather closely. Many rods are made with the cork turned down so much that it is impossible to fasten the reel to the rod securely. I like to have the rings fit so tightly that they have to be forced over the feet of the reel. The reel will indent itself into the grip and the rings will shape themselves to the cork and to the reel, resulting in a very secure attachment.

Spinning lines for fresh water fishing never need to be over 6 pounds test, unless one is fishing near obstructions for super tackle busters such as big lake trout, pike or muskellunge.

The lighter the line is, the farther the lure can be cast, so it is common sense to use the smallest diameter of line advisable under the circumstances. With light lines, one can catch more fish because the fish can not see the line as easily. A 3 pound test line for open water and a 6 pound line for fishing near weeds or other obstructions for big fish makes an ideal combination. The extra reel spool of line is good insurance in case of a break—and reel spools can be changed in a few seconds.

The usual rule between selecting braided lines or monofilament is to use the braided lines when fishing surface plugs or other top-water lures because braided lines spool better when tension is varied in working the lure. Monofilament normally is preferred at all other times. I use monofilament exclusively because it acts as a continuous leader; is almost invisible to fish, and because it casts to greater distances than braided lines. I think monofilament also is truer to strength. French monofilaments (such as "Tortue") are smaller in diameters for their strengths than any other type of line, and are ideally supple. To me, the

suppleness of "Tortue" makes braided lines unnecessary, even for top-water fishing. This line comes in 13 sizes from 2.2 to 15.4 pounds test, in a neutral grey-green color. It also is excellent for fly rod tippets and leaders, and for this purpose is offered in even smaller sizes. In open water, fish of 20 pounds or bigger can be handled easily on 6 pound "Tortue." The tendency is for spinning anglers to use lines much too strong, thereby penalizing themselves unnecessarily in casting distance.

Lures? Pick the ones you like best, including small spinners, wobblers,

weighted flies, plugs or bait of almost any sort. With a light rod and line of about 3 pound test, the lures in the quarter ounce range are ideal. With stronger rods and heavier lines, we can use lures correspondingly heavier. A good basic assortment might include the "C. P. Swing" and "Birdwing" spinners, the "Wob-L-Rite," "Phoebe" and "Birdwing" wobblers, one or two of the Phillips spinning plugs, a "Quilby" or two and "Heddon's Tiny Trio" for spinning. The "Buldo" plastic ball float (or bubble) will allow spinning tackle to be used most successfully for casting small flies, nymphs

or tiny baits. Plastic ball floats have so many uses that the subject will be discussed in a special article in an early issue.

Selection of tackle is very important in getting the right start in spinning. Reels, rods, lines and lures must be matched in weight or strength for best results. When you see an angler making amazingly long casts with almost pin-point accuracy and taking fish from places the fly rod man or the plug caster can't reach, don't envy him. With a properly matched and sensibly selected spinning outfit of your own, you can do just as well as he can!

JUG-O'-RUM (Continued from Page 11)

water. Usually when he is disturbed on the bank, he plops into the water with his warning cry "Krunk!"

The male of the species is distinguished from the female in nature's own inimicable way. The purpose of the larger ear, or tympanum, of the male will probably long remain a secret. Apparently frogs are insensitive to most noises, but they do react to the croaking of other frogs. The ear is also the organ which adjusts the equilibrium, or balance, of the body. Again mortal man is amazed at the ingenuity of this small animal's construction.

There are many wonders in the world which continue to astound all of us. The skin of a frog, for instance, is far more complex than most men realize. This is a very specialized organ that performs many duties. The color can be varied according to the background of the environment. It has been found that blind frogs cannot vary this color. Therefore this "chameleon" effect must be related to sight. The skin also has other duties. It is used as a respiratory organ especially adapted for breathing when the frog is in hibernation. About every month a new outer-most layer of skin is formed; the old skin is molted in one piece and then swallowed. The skin is also a protective device, since rough handling of owner causes it to give off a strong alkaline secretion with a burning taste that protects it from its enemies. Since the frog doesn't drink, this versatile organ, the skin, absorbs water.

Unlike many animated organic creations found on the earth, the frog has more than one breathing organ.

The lungs, the lining of the mouth cavity, and the skin, as already noted, are used in breathing. The beating motion of the frog's throat ceases and the nostrils close when the frog submerges into the protective depth of the water.

The protruding eyes of the bullfrog are unusual and necessary. Not only does a frog see with them, but he also depresses his eyes to aid in swallow-

ing! Certainly a new wrinkle in the scheme of things.

It is thought by many that a frog's diet consists only of insects, but this is not true. He also is fond of mollusks, crustaceans, fishes, and amazingly enough, other frogs. This amphibian will pounce upon most any object that moves providing he can get the head of his prey into his mouth. Bullfrogs have been seen that have the tail of a fish protruding from their mouths, because the body cavity was not long



enough to take the entire length of the fish. In the minnow bucket of a fisherman, one large frog was found to have gorged himself on four of his brethren to the extent that four pairs of legs dangled from his mouth. The smaller foods are caught by a lightning flip of a mucus covered tongue. Since these amphibians lack salivary glands, the mouth secretes mucus to aid in swallowing and digestion. The competence of nature seems to be un-

failing when she constructs her living earthly forms.

Everyone knows that one of the economic importances of the bullfrog lies in the palatable legs of this semi-aquatic animal, but not many of us realize the vast void that would be left in the world if some unforeseen catastrophe would wipe this creation from existence on earth. Certainly all of us would miss his familiar serenading, but how can we begin to imagine the

abyss that destruction of this creature would leave in the interdependency of all forms of animal life upon one another. Both the predators and the preyed upon might necessarily have to form a new mode of life or vanish from the face of the earth. Yes, it is true that nothing is missed until it is gone.

Let us all recognize and appreciate the importance of all the animals that nature has endowed upon us.

THE ANGLEWORM (Continued from Page 13)

imaginary or real enemies, and those in close proximity hearing the sounds are prompted to play safe. But, scouts and any kind of a plan stretches my credulity. However, I'm no authority.

Earthworms are hermaphroditic, i.e., each is capable of producing both eggs and sperms. However, a worm does not use its own sperms (male cells) for fertilizing its own eggs. Instead, it exchanges its sperms with those of another. Every nocturnal seeker of *Lumbricus* has observed the transaction taking place.

When a worm is ready to lay eggs it employs the band or girdle seen on the midsection of every mature worm. The band known in biological parlance as the clitellum begins to slowly slip forward toward the head. As it moves along it passes over successive openings which discharge batches of both eggs and sperms into the recesses of the now swollen band. By the time it slips off over the head it has received its full complement of both sex cells. Then the open ends of the clitellum neatly close to become the egg sac or cocoon of the earthworm. Being the size of a mustard seed it readily becomes incorporated with the soil where it remains until the extremely diminutive but perfectly formed worms are ready to emerge. Pretty slick trick!

A chap up Pymatuning way operating under the business pseudonym of "Mr. Maxine" raises and sells millions of grubs (meal "worms"), tens of thousands of earthworms and a patented concoction called *Wormout*, the latter complete with a generous portion of sphagnum moss in which to keep the routed worms.

Max knows his worms. Long experience has taught him that a worm-tight bed, trough or whatever such a container is called, is unsuitable for them. Such structures must have drainage, and holes no matter how small provided for that purpose also

provide an exit for the worms. Max has solved this problem simply by sinking a bottomless rectangle of cement walls to a suitable depth (three feet). The idea is to supply such an attractive environment as to make the worms home-bodies. A rich leaf mold from a maple forest, generously fortified with good garden soil make the worms happy. Judicious amounts of corn meal, coffee grounds and bits of dried, half-disintegrated maple leaves keep his charges contented.

Max has located the several beds so closely together that if an occasional worm is seized with wanderlust he ends up in an adjoining bed. Protection from freezing is provided by an adequate layer of leaves topped by evergreen boughs to hold them down. When I was there the beds were completely hidden under several feet of snow.

Max starts his stock by introducing several dozen healthy uninjured worms (nightcrawlers and a short, stout hy-

brid he has developed) into a three by twelve foot bed. The worms do the rest. A worm can produce young when less than a year old. The creatures are gregarious and don't mind crowding if they are kept cool, say, at a temperature of not more than 68 degrees.

There are many species of fishworms native to this country ranging in size from a few to more than twelve inches long. The most familiar are the night-crawlers and the smelly manure worms. There is also an aquatic species supplied with gills which lives in suitable soil at the bottom of shallow ponds. When I clean out my small lily-pond I disinter hundreds of the active little chaps.

Our largest worms are mere pygmies compared to some tropical forms; one, a native of South America may be five or six feet long. Another giant found on the wet river slopes of Gippsland, Australia, frequently attains a length of ten or twelve feet and a body diameter equal to that of a fat sausage. It's supposed they are sold by the yard!

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SUGGESTIONS FOR SUMMER Plant a Tree or a Grove

A young friend of mine invited a dozen members of his biology class for a weekend at his father's cabin. Below the cabin are two acres of rather steep hillside. And now down the slope march 500 small conifers. You may not wish to attempt anything that ambitious, but plant at least one tree this summer. Find one that is crowded in a forest or wood lot and move it to a spot where its roots and branches will have a chance to stretch out. When you transplant a tree, remember to take a generous amount of earth with the roots. Exposure kills the root hairs which are vital to the success of any replanting. Give the newly-planted tree a good drink, and in the big bed press the earth firmly about the plant's roots.

"We're going to interrupt a gully"

When two students told me last June that they were going to "interrupt a gully," I was not certain what they were planning to do. In September we went out to see their project. A gully had cut its way in a pasture. At its upper end the sides were steep and the gully narrow; lower down, it widened out and the sides slanted. At the upper end the boys had made dams with large rocks at regular intervals, and in between they had scattered all sorts of junk. This debris had caught and held the precious top soil that otherwise would have washed away. In the lower gully they had planted shrubs, especially wild roses, sassafras, berry bushes, and honeysuckle, and in between they scattered grass seed. They used whatever shrubs were at hand for they believe that ultimately when the scar is removed, the area will be pasture and the shrubs will be destroyed.

Learn the Mushrooms . . . and Toadstools

Every summer, newspapers carry stories of entire families being wiped out because someone gathered what he thought were mushrooms. Toadstools look very much like mushrooms. Some of the deadly ones cause the body to react to them much as it does to rattlesnake venom. Get a good book on the

subject, or better yet, find someone who knows his wood-lore. He'll show you how to distinguish the harmless from the poisonous. Check on berries too; some are bad.

Learn Some of the Rarer Birds

You probably know 25-30 of our common birds. Make a list of the ones you always recognize. Then see if you can double your list by summer's end. You probably know the summer warbler, but do you know its less sociable cousins? You know the bluebird and the blue jay . . . how about the indigo bunting? When you go birding dress and act quietly. A pair of field glasses will be very helpful but not essential if your own eyes are bright.

Make a Nature Trail

If you live near a forest or wood lot, label the different species of shrubs and trees along the path. This would be a good project for a club, scout troop, or a Sunday School class. With a good tree guide, your group could become acquainted with most of the trees in your vicinity. Each time you went down the path you would renew your acquaintanceship because the label would remind you of its name until you knew it for life. And soon you would change the label so that it would not read just MAPLE, but RED MAPLE, or SUGAR MAPLE, or MOUNTAIN MAPLE, or perhaps still another species of this famous family.

Collections Are Always Interesting



An insect collection has often been a young person's first step toward be-

coming a scientist. Some young collectors study just one Order of insects like the beetles, the dragonflies, or the true bugs. Others like to collect something of every six-legged thing they see . . . or catch. In the past, the insects were usually pinned in boxes but more and more the modern collector is using the plastic mount.

There are many other items of natural history that are possible to collect. My students have made collections of leaves, flowers, seeds, ways of seed dispersal, plant galls, twigs in cross section and longitudinal section, minerals, fossils, shells, invertebrates in alcohol or in plastic, etc.

Take in Boarders for a Few Weeks

Make a cage that will house temporarily a vertebrate you may catch. You will learn more about it if you care for it yourself than you could by reading a book. Amphibians, non-poisonous reptiles, small mammals will teach you many facts. Fish from a pond will live in your fish bowl; don't try to keep fish from running water, though. They'll die in still water. If you prefer animals that are more like our domesticated ones, try a pair of guinea pigs, hamsters, or white mice. There is an amazing number of fresh water tropical fish to choose from. Before you start a project like this, however, you ought to make someone a promise that if you prove the type that tires of animals quickly that you will abandon them at once. Return them to their native haunts when you no longer want to feed and water them.

Chuck, the Warden, Says—

No one has ever followed in the wake of a forest fire without having a feeling, very much like horror, of the wanton destruction of property and life that has just occurred. Even years later there is an awful scar that on steep slopes may never heal. So this summer be especially careful with any flame you may start. See that that camp fire or that picnic fire is really out before you leave it. Don't toss a match away until you have broken the match stick in two pieces; then you'll be sure it won't start a fire along the trail.

WHAT'S NEW IN FISHING BOOKS

By Hugh Johnson

There is one thing we can be sure of in connection with modern fishing books, and that is that when a new book comes out under the imprint of the Stackpole Company of Harrisburg, it is beautifully and sturdily put together, smartly designed and, from the physical standpoint, a credit to anyone's library. *The Lure and Lore of Trout Fishing* by Alvin R. Grove, illustrated by Pearce-Bates, \$5.00, is a recent example of Stackpole's know-how in "packaging" a book.

Although the author takes no stand as such against bait fishing, this is a fly-fishing-only book. I would not go so far as the publisher's descriptive blurb on the dust-wrapper of the book which states that this is "the first book on trout fishing which contributes here in America much that the works of Skues, Halford, Ronalds, and Mosely have contributed to the famous fly-fishing literature of England." Such a statement takes a rather careless view of the post-humous publication of Theodore Gordon's writings, the work of Preston Jennings, George M. LaBranche, E. R. Hewitt, Art Flick and other Americans of some stature. *The Lure and Lore of Trout Fishing* does, however, make its own, worth-while contribution to the literature of American angling.

What Professor Grove *does* give us and that which, fortunately, occupies more of his attention in the book than his occasional flights into the technicalities of a PhD. thesis, is a meaty, fact-filled, on the whole highly readable exposition of all that is basic to successful and stimulating fly-fishing. Not really a how-to-do-it book, it goes deeper than that, gets into the very roots of fly-fishing. For example, the chapter "Food for Fish" is a fascinating summing up of all the useful facts about trout diet, life patterns of stream insects, how the character of a particular stream affects insect emergence, trout feeding, etc., and contains a Table of Insects that is remarkably clear and sensible. This Table is broken down according to insect orders (mayflies, stone flies, and the others, with their Latin names provided), describes the physical characteristics of the nymphs, larvae and adult flies, gives the common names of artificial flies which imitate each, in what regions and types of waters the insects are prevalent, and average emergence times of the winged insects. Too often this important background information is insufficiently or foolishly treated in fishing books. It is very well handled in Professor Grove's book.

Under the chapter "Drys and Wets," the author covers all the essential facts about why and when and what of each of the two kinds of flies, and charges the chapter with some provocative opinions such as the one that the wet fly version of a dry pattern will usually take more fish, when fish are feeding under the surface, than will the nymph fly designed to imitate the nymphal form of the insect. As a confirmed nymph fisherman, I balk at that one but at the same time must admit that the author makes out a very good case for himself. The chapter "Materials" will delight the fly-tier, particularly the sane discussion of hackles and how to select good hackles. The chapter "To Tie a Fly" contains some gems of suggestions, although the lack of sufficient illustrative drawings slants the chapter more to the practiced hand than to the beginner.

In general, this is a superior type of book—emphasizing that *foundation* knowledge which shapes a fisherman's action and stream tactics, rather than telling him specifically how to cast, how to wade, how to affix a fly to leader. It is a book for the angler who has developed beyond the beginner stage, who wants to learn the "lore" behind his sport, who wants to probe the why of what he does, who is ready to indulge in a little "graduate study" which will heighten his enjoyment of fly-fishing. The heart and mind and high spirits of a twentieth-century "compleat angler" glow throughout the 328 pages of *The Lure and Lore of Trout Fishing*. It's not everybody's book, but the conscientious fly-fisherman and, certainly, the one who ties his own flies, will be missing a good bet if he doesn't get his hands on a copy of Alvin Grove's book.

PENNSYLVANIA FISH LAW VIOLATIONS

ALLEGHENY COUNTY	
Kneldinger, August, 18 Catharine St., Etna, Pa. Fishing on Sunday without permission of landowner..	\$ 25.00
Kneldinger, August, 18 Catharine St., Etna, Pa. Fishing in closed season	5.00
LeDonne, Anthony, R. D. 12, Pittsburgh, Pa. Fishing on Sunday without permission of landowner	25.00
LeDonne, Anthony, R. D. 12, Pittsburgh, Pa. Fishing in closed season	5.00
BEAVER COUNTY	
Hoover, Charles, 213 Anthony Lane Terrace, Badan, Pa. Fishing in closed season	5.00
Raccion, Cosimo, 111 8th Ave., Beaver Falls, Pa. Fishing in closed season	5.00
BEDFORD COUNTY	
Miller, Charles J., R. F. D. No. 1, Hyndman, Pa. Illegal device	20.00
BERKS COUNTY	
Specht, Jr., Norman E., 24 Little Wonder St., Reading, Pa. Fishing without a license	25.00
Wieman, Joseph, R. D. No. 1, Wernersville, Pa. Illegal device	20.00
BUCKS COUNTY	
Compton, George W., 23 Trenton Ave., Hulmeville, Pa. Fishing in closed season	5.00
CAMBRIA COUNTY	
Altimus, Harry R., Belsano, Pa. Three bass in closed season	30.00
Horne, Albert, 734 Ferndale Ave., Johnstown, Pa. Operating a motorboat without a license	75.00
Kordell, Joseph G., 601 Bay St., Johnstown, Pa. Fishing without a license	25.00
Kordell, Theodore G., Box 275, Johnstown, Pa. Transferring fishing license	25.00
Krug, Nelson, Spangler, Pa. Fishing in closed season	5.00
CENTER COUNTY	
Disherson, Milton E., State College, Dorm 12, State College, Pa. Fishing without a license	25.00
Fox, Richard B., 526 W. College St., State College, Pa. Fishing on the penitentiary property	20.00
CHESTER COUNTY	
Coates, Granville H., R. D. No. 2, Oxford, Pa. Ten black bass in closed season	100.00
CLEARFIELD COUNTY	
Zaycosky, Frank J., 314 Rumbarger Ave., DuBois, Pa. Fishing in closed season	5.00
COLUMBIA COUNTY	
Howell, Bruce, Light Street, Pa. Fishing in closed season	5.00
Howell, Ralph, Light Street, Pa. Fishing in closed season	5.00
CRAWFORD COUNTY	
Apple, Ava, Box 24, Saegerstown, Pa. Exceeding creel limit	10.00
Pardee, John, R. D. 1, Saegerstown, Pa. Exceeding creel limit	10.00
DELAWARE COUNTY	
Luttrell, Joseph J., 1135 Keystone Rd., Chester, Pa. Fishing without a license	25.00
Meyers, Jay H., 413 Milbank D.D., Upper Darby, Pa. Fishing in closed season	5.00
ERIE COUNTY	
Kowalski, Ludwik, 208 German St., Erie, Pa. Unnaturalized foreigner obtaining license by giving false information	20.00
FAYETTE COUNTY	
Cirilli, John, Box 152, R. D. No. 2, Connellsville, Pa. Fishing without a license	25.00
Eutsey, Frank, Box 313, Connellsville, Pa. Fishing in closed season	5.00

FRANKLIN COUNTY

Beltz, Raymond C., 275 Harrison Ave., Chambersburg, Pa. Giving false information to secure fishing license	25.00
Buohl, Arthur B., 359 Lortz Ave., Chambersburg, Pa. Exposing striped bass for sale	50.00
Byers, James C., 411 Hood St., Chambersburg, Pa. Rods and lines not under immediate control	20.00
Chamberlin, Clayton D., R. D. No. 1, Waynesboro, Pa. Fishing in closed season	5.00
Cordell, H. R., Rt. No. 1, Greencastle, Pa. Rods and lines not under immediate control	20.00
Freet, Clayton E., 124 E. Liberty St., Chambersburg, Pa. Illegal device	20.00
Furry, Jack W., Scotland, Pa. Illegal device	20.00
Mackey, Ray W., R. D. No. 2, Chambersburg, Pa. Illegal device	20.00
Oller, Boyd L., Rt. No. 1, Chambersburg, Pa. Illegal device	20.00
Oller, Wm. V., R. D. No. 1, Chambersburg, Pa. Illegal device	20.00
Sharron, Merle E., 802 Maple St., Waynesboro, Pa. Fishing in closed season	5.00
Stockslager, Marvin L., R. D. No. 5, Chambersburg, Pa. Illegal device	20.00
White, Jack W., R. D. No. 4, Waynesboro, Pa. Illegal device	20.00

FULTON COUNTY

Smith, Nelson B., R. D. No. 1, McConnellsburg, Pa. Rods and lines not under immediate control	20.00
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HUNTINGDON COUNTY

Barto, Elmer R., Warriors Mark, Pa. Failure to show fishing license certificate	25.00
Taylor, Ralph, Petersburg, Pa. Fishing without a license	25.00

INDIANA COUNTY

Williams, Hadden H., Strongstown, Pa. Three bass in closed season ..	30.00
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LACKAWANNA COUNTY

Balon, Henry, 516 Eynon St., Scranton, Pa. Three wall-eyed pike in closed season	30.00
Barron, Wasil, 476 Bodnick St., Peckville, Pa. Fishing in a closed season	5.00
Bell, Herman, 1013 Fick St., Scranton, Pa. Three undersized pickerel	30.00
Dombrosky, Joseph, Jr., 459 Bronick St., Peckville, Pa. Fishing in closed season	5.00

Donnini, Norado, 816 Brinker St., Dunmore, Pa. One undersized pickerel	10.00
Lipiko, Michael, 1228 Loomis Ave., Scranton, Pa. One undersized pickerel	10.00
Lyncheski, John, 135 Charles St., Throop, Pa. One pickerel in closed season	10.00
Pompey, Gerald, 818 Main St., Peckville, Pa. Fishing in closed season	5.00
Stefanowicz, Barney, 521 Locust St., Scranton, Pa. Two wall-eyed pike in closed season	20.00
Woznicke, Alex, 1337 Cornell St., Scranton, Pa. One undersized pickerel	10.00

LANCASTER COUNTY

Grimley, Mrs. Crist, 237 W. James St., Lancaster, Pa. Fishing without a license	25.00
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LEHIGH COUNTY

Dubrick, Michael, 165 Spruce St., Emmaus, Pa. Fishing in closed season	5.00
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LUZERNE COUNTY

Fedorchak, Charles, 11 Hill St., Glen Lyon, Pa. Illegal device	20.00
Shonk, George, 535 Washington Ave., Larkesville, Pa. Fishing in closed season	5.00
Shonk, Gerald, Huntsville Rd., Trucksville, Pa. Fishing in closed season	5.00

MIFFLIN COUNTY

Fry, Ralph R., 634 E. Walnut St., Lewistown, Pa. Fishing without a license	25.00
Worley, J. William, Honey Brook, Reedsville, Pa. Fishing without a license	25.00

MONTGOMERY COUNTY

Smith, Frani, Schwenksville, Pa. Fishing in closed season	5.00
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MONTOUR COUNTY

Sutherland, George, R. F. D. No. 1, Danville, Pa. Rules and Regulations	20.00
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NORTHAMPTON COUNTY

Prestosh, Charles, 1800 E. Second St., Bethlehem, Pa. Fishing in closed season	5.00
Rabenold, Albert J., 606 Zane St., Easton, Pa. Fishing in closed season	5.00
Smack, Sheldon C., 608 Zane St., Easton, Pa. Fishing in closed season	5.00

NORTHUMBERLAND COUNTY

Snyder, Charles D., Leck Hill, Pa. Illegal device	20.00
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Young, Dale W., 343 Vine St., Sunbury, Pa. Exposing for sale two rock fish	20.00
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PHILADELPHIA COUNTY

Gadzinshi, Henry J., 2504 E. Oakdale, Philadelphia, Pa. Fishing in closed season	5.00
Kapczynski, Charles, Jr., 4830 Milrose St., Philadelphia, Pa. Fishing in closed season	5.00
Kapczynski, Charles, 4830 Milrose St., Philadelphia, Pa. Fishing in closed season	5.00
Lapin, Joseph, 2215 Friendship St., Philadelphia, Pa. Fishing in closed season	5.00
Thompson, Basil T., 5422 Lackawanna St., Philadelphia, Pa. Fishing in closed season	5.00

SCHUYLKILL COUNTY

Miller, George, Joliett, Pa. Fishing in closed season	5.00
Morgan, Bryant, Valley View, Pa. Fishing in closed season	5.00
Morgan, Ira, Valley View, Pa. Fishing in closed season	5.00
Sherkness, George, 408 W. Center St., Mahanoy City, Pa. Seling fish below legal size	20.00
Smith, John J., 114 Minersville St., Pottsville, Pa. Fishing in closed season	5.00

SOMERSET COUNTY

Harned, Harry F., Box 54, Stoystown, Pa. Fishing on Sunday without permission of the landowner	25.00
Ohler, Elwood, R. D. No. 2, Boswell, Pa. Fishing in closed stream stocked with trout and closed for five days	25.00
Ohler, Milton, R. D. No. 2, Boswell, Pa. Fishing in closed stream stocked with trout and closed for five days	25.00

WESTMORELAND COUNTY

Null, Bert, Ruffsedale, Pa. Fishing in closed season	5.00
Null, Philip, Ruffsedale, Pa. Fishing in closed season	5.00

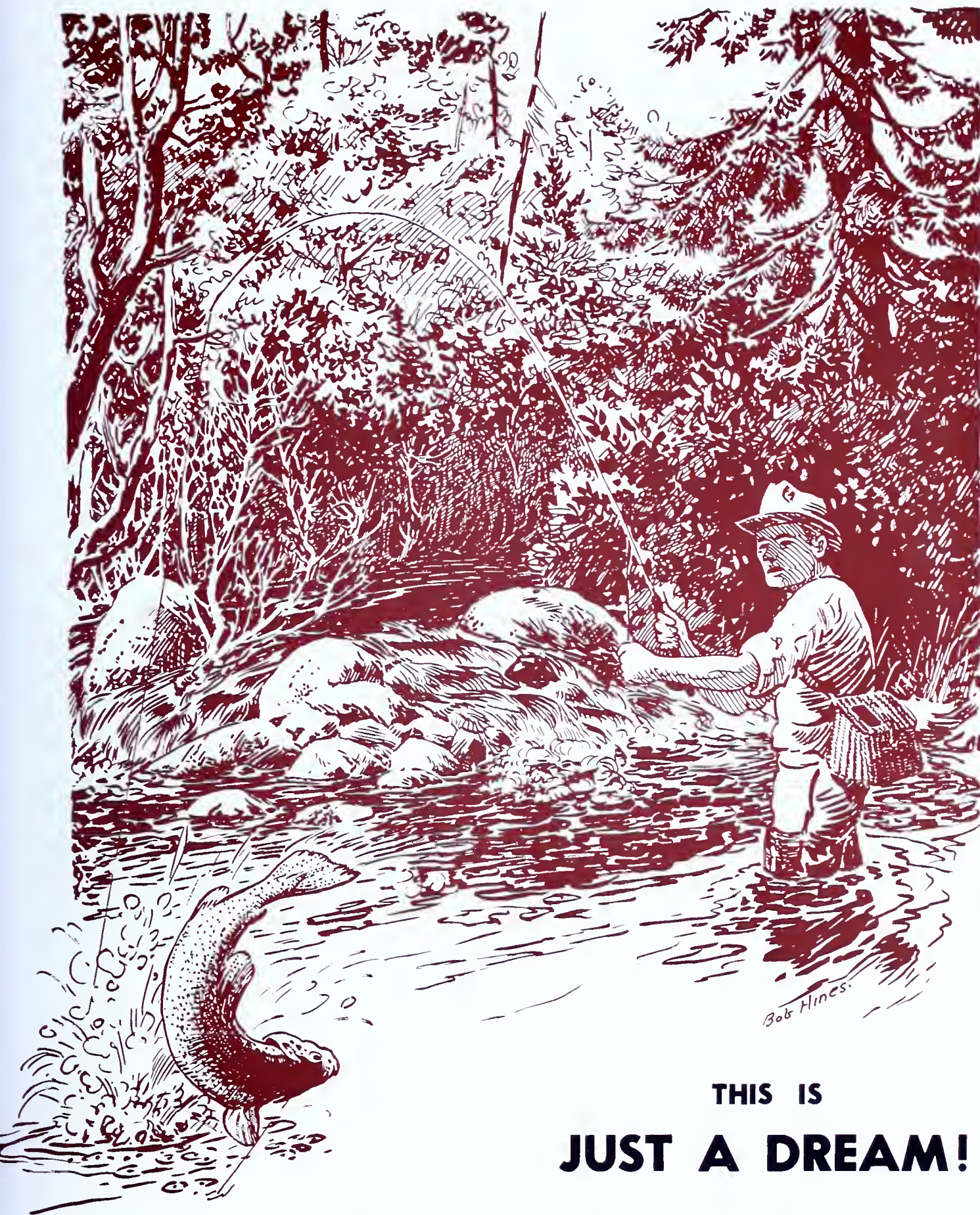
WYOMING COUNTY

Place, Wilson, R. D. No. 4, Tunkhannock, Pa. Illegal device	20.00
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OUT OF STATE

Waltman, Clyde R., 209 N. Mech. St., Cumberland, Md. Fishing without a license	25.00
Wyncoop, Ross C., 21 Winter St., Hagerstown, Md. Giving false information to secure a fishing license	25.00





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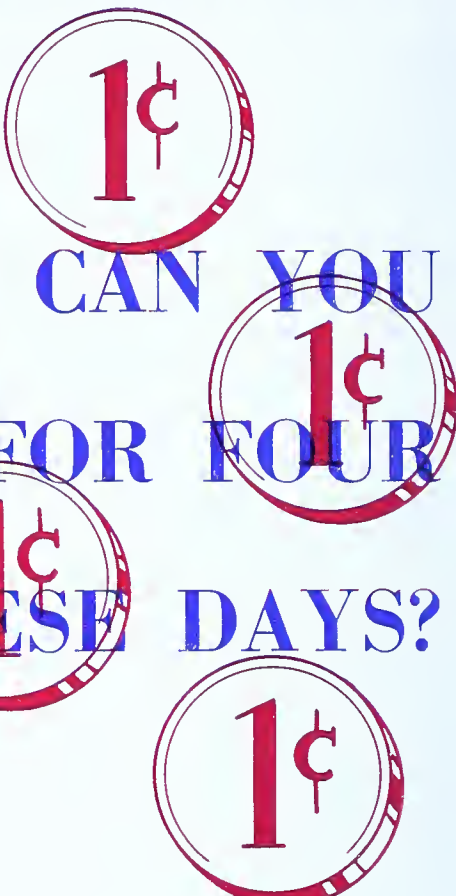
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1952

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PENNSYLVANIA ANGLER

J. Allen Barrett—Director Division of Public Relations

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The Cover . . .

PUGNACIOUS MALE SMALL-
MOUTH BASS guarding nest against
all intruders. It required time and
infinite patience for Fish Commission
photographer, George Gordon to
capture this remarkable photograph.

Back cover sketch by
Harold E. Bush



George W. Forrest, Editor

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Early Fisheries of the **SCHUYLKILL**

Taken from the Report of the Pennsylvania Commissioners of Fisheries, 1892-93-94—Chapter VI, pp. 286-294

FOREWORD

This is the story of the Schuylkill of yesteryear—a river which has played a significant role in the lives of the people along its banks.

Early Americans found the Schuylkill an excellent fishing ground and, to their later regret, they found, too, that it could be used as an avenue for the disposal of any waste or unwanted product. By the time man had learned that he could not use the river both for fishing and as a sewer, the fertile industry had been ruined. Man had left his indelible mark on the river.

Today a noteworthy (and very costly) endeavor has been made to rectify man's former mistakes. The "Clean Up the Schuylkill" program which has attracted nation-wide recognition, has already restored many acres of the river for fish life and has again made it attractive to people. For the first time in this century, as far as we know, the Pennsylvania Fish Commission is stocking the Schuylkill with game fish.

Figure 1
The Schuylkill still retains much of its scenic beauty.



NOT LESS beautiful in scenic effects than the Delaware is its greatest tributary, the River Schuylkill, named by the early Dutch settlers from the windings and hidden character of the stream. Near Philadelphia this river and its surroundings bear a remarkable resemblance to the River Rhine. A few miles above, the river dividing winds its arms like huge silver serpents in and out among mountains and hills wild and grand.

The Schuylkill was once a famous shad river; William Penn in one of his letters mentioned that "six hundred shad had been taken with one sweep of the seine." But now, through dams and pollution, its glory in this respect has departed, and since 1830, as far as known, not a fish of this species has returned in its waters.

On the banks of this river was founded, in 1732, the "Schuylkill Fishing Company of the State in Schuylkill," one of those institutions for which Philadelphia is at once famous and peculiar. This organization flourishes today as vigorously as it did one hundred and sixty years ago, although its quarters have been removed from its original location. For years the society occupied a building on the slope of Warner's Hill, paying an annual rental to William Warner, the owner of the land, of three fresh sunfish. Still another famous fishing club of pre-revolutionary times was that of old Fort St. Davids, where Falls of Schuylkill now is. This organization, which was composed of many notable men, after the war for independence, was merged into that of the State of Schuylkill.

Mr. Samuel W. Pennypacker, one of the most eminent antiquarians in the State, has been at much trouble in rescuing from oblivion the early fisheries of the Schuylkill, and has embodied the results of his researches in a deeply interesting work entitled "Phoenixville and Vicinity." Of the fisheries, Mr. Pennypacker says, "that in the early part of the last century every spring the shad came up the Schuylkill in immense numbers, and the inhabitants along its banks engaging en masse in fishing, secured enough to furnish their families with this article of food until the next annual return. The earliest place for fishing now known was at the Long Ford, opposite Port Providence. The pond there constructed belonged in common to the dwellers upon both shores of the river, and they united their forces in the pursuit and divided the spoils after the capture. A wall, in the form of a segment of a circle, and answering as a pen into which the fish could be driven, was built in the middle of the stream with an entrance towards its source. From the edges of this opening, racks were stretched obliquely to each shore, and were secured in their positions by being tied with withes to stakes which were driven into the ground at the bottom of the river. A rope of grape vines and bushes, long enough to reach from one shore to the other, was made, usually at the mouth of Mingo creek, about five miles above, and when it was completed the fishermen started in canoes to sweep the river. By this means the shad were forced into the pen, and were caught with a small net. Whole days were devoted to the work, sometimes as many as forty men engaged in it, and John Shaw, who was a person of veracity and had frequently assisted, when an aged man told Moses Robinson that he had seen eight thousand five hundred shad driven in the pound at one time. The fishermen who were present

when this assertion was made accredited the statement.

"Another method of fishing was afterward adopted. Racks extending from shore to shore were placed in the stream with their bars so close together that the fish could not pass, and a pool or basin was cleared away below. The shad ascending the river to deposit their spawn, crowded against the racks in such numbers as sometimes to push each other out of the water, and a pole could not be thrust to the bottom without displacing them. As many were taken as were wanted, and the rest struggled in unsuccessful efforts to escape the impediment. This plan, though effectual, was very wasteful and destructive, and awakened the angry opposition of those who lived farther up the river. In fact, these fisheries from their commencement, were the source of continual jealousies and disputes, and their regulation was the subject of much early legislation.

"In May, 1724, a bill was passed for 'demolishing and removing Fishing Dams, Wears and Kedles set across the River Schuylkill' and was followed on the 15th of August, 1730, by an act to 'prevent the Erecting of Wears, Dams, &c., within the Schuylkill.' The effect of these enactments was, however, evaded, and among the Archives of 1732 is found the following deposition: 'Marcus Huling Saith That as he was going down the Schuylkill with a Canoe Loaded with wheat, that striking on a fish dam, she took in a great deal of water into ye wheat, by means whereof his wheat was much damnified, and that it was in great danger of being all lost; and that another time he stroke fast on a fish dam, and should have lost his whole Load of wheat, if he had not leaped into ye river and with hard Labour prevented ye Canoe from Swinging round, and so suffered very much in his body by reason of ye water & cold; and that at another time he stroke fast on one of ye Rock dams & with great hazard and hard Labour escaped with his Life and Load.

"Jonas Jons Saith That in ye month of February, it being Extreame Cold, he stroke fast on a fish Dam, and to save his Load of wheat was obliged to leap into ye River to ye middle of his body and with all his Labour and Skill could not get off in less than half an hour. afterwards proceeding on his journey with ye said wet clothes they were frozen stiff on his back, by means whereof he underwent a great deal of misery.

"Jacob Warren Saith That he with a Canoe loaded with wheat stroke fast on a dam, where he with his partner were forced into ye River, and one with all his might was obliged to hold ye Canoe whilst ye other digged away ye stones of ye Dam, and with much difficulty got off.

"Isaac Smally Saith That going down ye said River with 140 bus. of wheat in a Canoe, they stroke fast on a Rack Dam and in order to save ye Load from being all lost, he was much against his mind obliged to leap into the River, the water being to his Chin frequently dashed into his mouth, where between whiles he breathed, and both he and his partner held ye Canoe with great labour; whiles a young man there present ran above a mile to call help to get off.

"Walter Campbell Saith That he hath stroke fast many times on ye fish dams with his Canoe Loaded with wheat, and been forced to leap into ye River before he could get off.

"Jonas Yeokam and Richard Dunklin say, That they got fast on a fish dam with their Canoe loaded with 60 bus. of wheat & ye s'd Dunklin's Wife and a Young Child in ye Canoe, and were for more than an hour in great danger of being oversett into ye River, where if they had, undoubtedly ye Woman & Child would have been lost.

"Barnabas Rhoades Saith That he stroke fast on a fish dam in Schuylkill for several hours in ye Cold winter

Figure 2

Over this route our forefathers plied their canoes and filled their larders with shad and other food fish.





Figure 3
With such modern equipment as this, man is today cleaning up the Schuylkill.



Figure 4
Biologists of the Pennsylvania Fish Commission make frequent checks on the river to determine suitability for fish life.

Season, destitute of any help, in which time he underwent a great deal of hardships and at last gott off, during all which time he was in great danger both of his life and Load. And that he has at divers times been fast on ye said Dams and in great danger.

"George Boone, John Boone, Joseph Boones, James Boone, Samuel Boone, Say that they have been sundry times fast on ye said Fish Dams and Rack Dams, and to preserve the Loads of wheat have been forced several times to leap into ye River, and have very narrowly Escaped with the lives & Load.

"In consequence of these and other representations, an act was passed, in 1734, of similar purport with the preceding. In 1735, petitions were presented by both parties, without any change of legislation; but in 1736, those who were in favor of the weirs and dams succeeded in getting the Legislature to give them the privilege of erecting their racks in April and May, during the fishing season. This ought, perhaps, to have obviated the objections of the poor fellows who underwent so much misery from being compelled to leap into the river in the midst of winter, but it did not meet with the approbation of the Governor and council, and was the cause of some dissension between them and the Legislature. The bill was returned by the Governor with the objection that, instead of being an amendment to previous acts, as it purported to be, it was in reality a repeal.

"The assembly endeavored to remove his opposition to it and he replied in a message in which the whole subject is reviewed. He said that the policy of the proprietor hath always been against the erection of the dams and weirs, because they were an obstruction to navigation, and that the racks were worse than the weirs, for while the latter were only made of light sticks the former were constructed of more substantial material, like horse-racks, and were sustained in their places by large stones carried into the river to support them. A more serious objection was the threatened destruction of the fish. The practice followed by those who fished with racks in the Schuylkill was the most ruinous that could possibly be contrived.

"This practice is for Great Numbers of People mostly on Horseback for a mile or two or more, with large Bushes, Stakes or other Instruments that may best answer the End, to beat the water with great Noise, rake the Bottom of the River above the Racks and, to take all the methods in their Power to force the Fish down into the Racks; and if this was the Practice heretofore, now when half the River is to be left open it will follow of course that others in and about the vacant Part must use equal or greater Industry to prevent their getting that way by the Racks, by which means those that can escape must be more frightened and disturbed, the Spawn by the treading of Horses or other Feet, by raking with Bushes and Trees must be destroyed.

"Not only were the people residing on the upper part of the river deprived of that to which they had an equal right with the other settlers, but it would result in the extermination of the fish, and the inhabitants and their posterity would be robbed of this great source of benefit and profit. He also gave as an objection the moral consideration that the erection of racks were attended with 'tumultuous Meetings, riotous Behaviour, Quarrels, Contentions and even Outrages amongst the Young people and others who assemble as to a Merry-making or a publick Diversion, at the time of fishing by Racks, which

are so unseemly Returns for the benefits conferred.'

"The opponents of dams and weirs succeeded in preventing the act from becoming a law, but their views were not enforced without resistance. The fishermen of Long Ford were too stout hearted and too tenacious of their privilege they had for years enjoyed to yield without a struggle, and the use of the racks was continued despite of the legislators.

"Finally, in 1738, their exasperated adversaries up the river organized a force of volunteers, as formidable from the numbers and courage of its constituents as possible, collected a fleet of canoes, and under the command of Timothy Miller, a man of great muscular strength, set sail on the 20th of April, intent upon desperate deeds and in the full anticipation of success. Arriving at Long Ford they commenced a work of havoc among the racks, which they broke away from the moorings and sent adrift down the stream. A few of the fishermen, who chanced to be there when the fleet appeared, at first attempted with soft words to stay the destruction which was being committed, and, finding prayers and entreaties ineffectual, seized upon the loosened racks and endeavored to carry them away.

"This did not suit the purpose of the assailants, who pursued and relentlessly dragging the implements from their grasp broke and cut them into pieces. It was more than could be endured. Abandoning temporarily the disputed ground, they fled into the settlement, sounded the slogan and summoned to the rescue every man who could handle an oar or wield a club. Thus reenforced they returned to the encounter, and in their canoes made a furious assault upon the fleet of the enemy, which still unwisely lingered about the scene of demolition. The struggle that ensued, whose issue perchance depended more upon individual strength than skillful manoeuvring, became desperate, and for a long time Mars or Neptune whichever we may suppose to have been the presiding divinity, maintained the utmost impartiality. The scale was finally turned by the valor of Thomas Valentine, the tenant at the Knoll, who leaped into the canoe of the opposing commodore, Timothy Miller, struck out lustily upon all sides with a club, and after beating down every man of its crew succeeded in effecting its capture.

"This serious loss dampened the ardor of the assailants, and Miller, his thumb broken and his companions overpowered, was compelled to order a retreat. Encouraged by the unexpected advantage, the victors pressed their antagonists closely and the retreat soon became a rout. The beaten squadron fled rapidly down the Schuylkill, and in order to escape their pursuers, who followed with the utmost pertinacity, made the grave mistake of entering the Perkiomen.

"This stream was too shallow for navigation, and the canoes soon running aground, the crews were compelled to seek the shelter of the forests for safety. A complete destruction of the boats and their contents satisfied the vindictive ire of the fishermen, who returned to their homes elated with a triumph which had been dearly purchased with many severe wounds and the loss of their racks.

"This is the description of what was perhaps the only Naval battle ever fought upon the Schuylkill, as it has been handed down to us by those who participated in

(Turn to page 26)

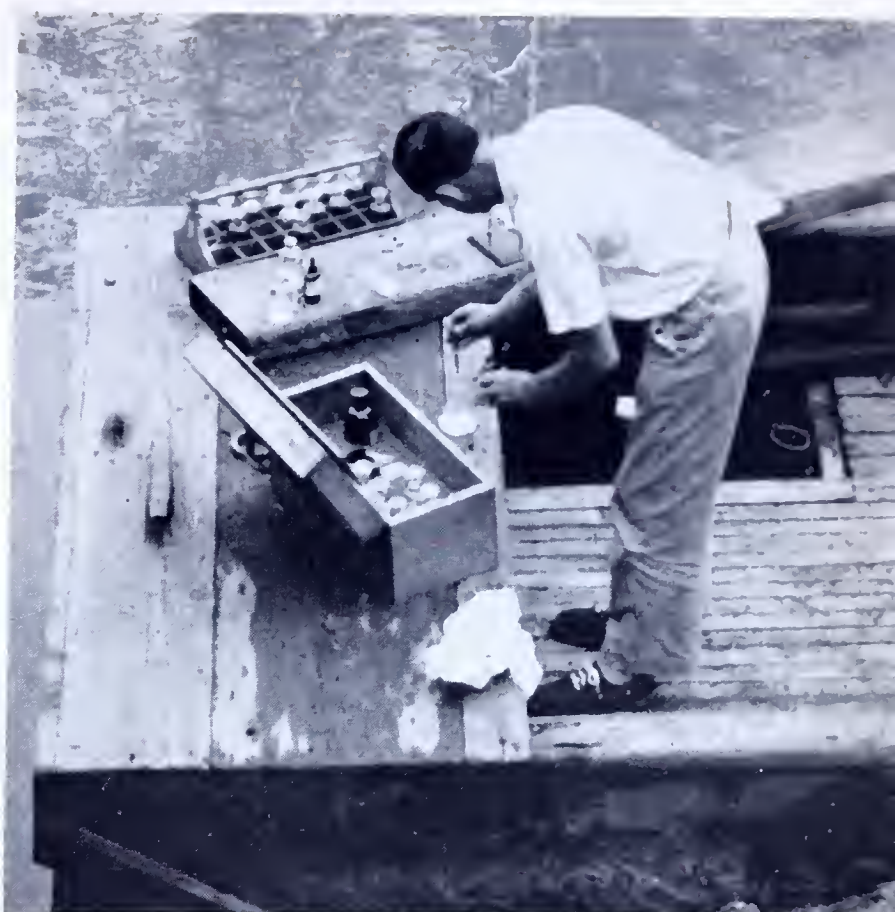
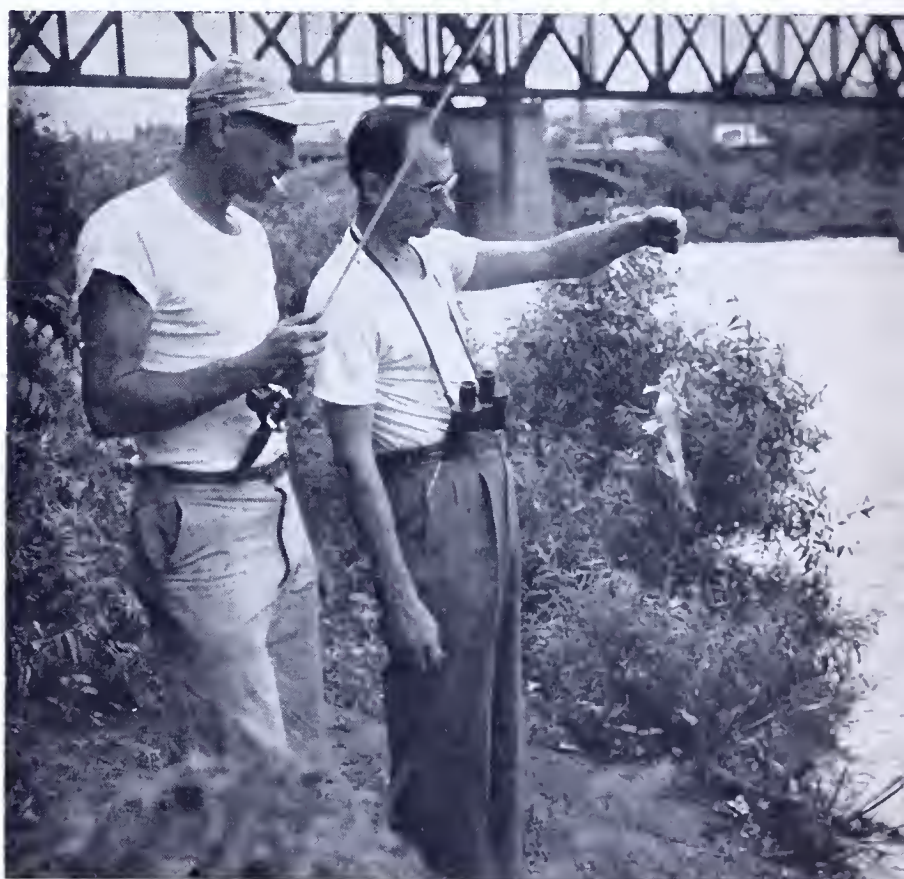


Figure 5
Chemical analyses are an important part of reclamation studies.

Figure 6
Fish are again swimming in the Schuylkill—and fishermen are attracted to its shores.





EFFECTS of **BEAVER** on TROUT WATERS

MY FIRST sight of a live beaver was in Soda Creek, Wyoming, nearly 40 years ago. Prior to that I had caught a good many hundred small brook trout in the mountain brooks of Pennsylvania and West Virginia, where there were no beaver, and a goodly number of larger cutthroat trout in Montana and Wyoming, where there were beaver. If beaver had been the only factor in the relative quality of the fishing, my vote would have been cast for him.

In those days, beaver had been exterminated or reduced to a mere remnant in all but the most remote areas of this nation. It was an event to see one, and as is sometimes the case with a rare or diminishing species, stanch champions appeared who were as long on sentiment for as they were short on knowledge of the animal and his relation to the environment. Practically everything written, including some supposedly scientific surveys, was favorable to the beaver. This propaganda conditioned me as at least a neutral observer, if not a mild proponent of the beaver.

But some 15 years ago when my angling horizons were broadened by fishing numerous trout streams of Michigan and Wisconsin, I became

By **KENNETH A. REID**

(EDITOR'S NOTE: The perennial question trout vs. beaver has risen again. Kenneth A. Reid, formerly a board member of the Pennsylvania Fish Commission and now fish and game manager for the Whitney Estate in the Adirondacks in New York State, presented this paper at the West Virginia meeting of the Northeast Section, The Wildlife Society, in April. The opinions expressed in this article are Mr. Reid's and not necessarily those of the Pennsylvania Fish Commission.)

more skeptical of beaver. In this comparatively level, wooded country, both the streams and the effects of beaver were quite different from those in either the eastern or western mountains. However, it was not until two years ago, when I moved to the central Adirondacks and was obliged to cope daily with the beaver in conducting a fisheries management program for Whitney Park, that my views crystallized into definite convictions: namely, that with rare exceptions, any abundance of beaver is detrimental to trout.

Trout lakes, ponds and major streams are no better than the brooks that feed them, and these in turn, are no better than the watershed in which they rise and through which they flow. The principal limiting factors to trout throughout most of the range are high summer temperature and low summer

volume of the streams, and the major causes of these adverse conditions are beaver and careless lumbering practices which ignore watershed considerations. The effects of the two are quite similar, but the means of correction are not. It may be possible to educate or regulate the lumberman to discontinue impounding a series of warm "frog ponds" along his roads through lack of drainage, appropriating beds of feeder brooks for winter sled roads, and filling the brooks with tree tops, limbs and other refuse; but the only way to stop beaver damage is to remove the beaver.

Where lakes and ponds are a prominent part of the trout habitat, the fish commonly move into the streams when the lake temperatures reach the mid-sixties during July and August, provided the streams are cooler. If not, the

trout will seek out the deepest and coolest parts of the lake, where their possibilities for sport on the fly rod are nil. Or they may concentrate at "spring holes," where a colder tributary enters either the lake or the larger stream. These cold rivulets are vital to trout, and it is on them that beaver do the most damage.

For many years the premier summer trout fishing on the property was in a famous spring hole on a principal tributary of Little Tupper Lake. Five years ago the fishing began to fall off. Last year it produced nothing but chubs and shiners. Investigation disclosed that the mouth of the spring brook carried no water, but several small trickles came into the main stream a hundred yards away. Following up these leads, we found 14 shallow beaver dams inundating practically the whole flat valley of the spring brook with a ghost forest of dead trees killed by the impoundage. Chubs and shiners swarmed, but trout were not there.

Above the highest beaver dam where the little brook emerged from the hills, the water was 16 degrees cooler than at the mouth a half mile away. Here its water was actually two degrees higher than the main stream, which it was supposed to cool. The reason why the spring hole had gone dead was perfectly obvious. But increased temperature is not the only adverse effect. Decomposition of flooded land vegetation robs oxygen, gives off carbon dioxide and makes the water more acid on the pH scale. The net result is a changed aquatic habitat in which undesirable trash fish multiply while trout diminish and sometimes disappear.

Beaver dams on the main streams which merely deepen the water without impounding broad, shallow areas beyond the banks may not be as destructive. In fact, such impoundments, by providing a greater depth of water and an initial abundance of food, often bring about a marked improvement in trout fishing for the first year or two. This temporary improvement has caused many enthusiastic fishermen to jump to the conclusion that beaver are highly desirable on trout streams; and when they return a few years later and find the trout practically gone, they are prone to blame outlaws, predators, or the conservation department for not stocking the stream, rather than face the plain fact that an undesirable biological change has taken place as a result of the beaver impoundment.

These dams are often effective barriers to upstream migration thus bar-

ring access to essential spawning areas. The unbelievable quantities of earth and mud used in their construction blanket the bottom of the stream below with fine silt. In fact, I believe this to be a major cause of the extensive deltas commonly found at the mouths of streams which have been long and heavily used by beaver. And the sticks remaining on the bottom from old feed beds form a mat which holds accumulations of silt and sand and prevents the current from scouring the bed down to the original gravel or rubble. I would hesitate to estimate the tonnage of imbedded wood debris we have removed from my experimental stream here, but feel safe in saying that between old beaver dams and feed beds there has not been a hundred yard stretch free of it. Relieved of this bottom binding mat, and with some aid from deflectors, the stream has in the first few months scoured down to clean gravel in many places where none was visible before.

Two years ago beaver dams within the first mile barred the trout in the lake from the upper reaches of the stream; and the only gravel bottom suitable for spawning was above. We found plenty of six- to ten-inch trout and a few up to 13 inches above these dams, but none of the lake square-tails from one and one-half to three pounds, which should have been up there during the summer and at spawning time. How much natural reproduction was lost by reason of these barriers we can only guess, but after removal of the barriers we took numerous trout from one and one-quarter to two pounds above that point. And in our diagonal weir and two-way fish trap nearly five miles above the lake, we checked two brook trout of two and one-half pounds each and one of exactly three pounds.

While we enjoyed greatly improved trout fishing this year, it would seem too early to credit much of this improvement to our beaver work. However, the increased take of beaver from 12 in 1949 to 51 the next year and 162 in 1951, plus cleaning tons of their debris from the stream, should show results in future years. Just as the bad effects of beaver workings are cumulative and not immediately apparent, I believe improvement in trout fishing will be progressive in the coming years provided we keep the beaver in check.

Beaver damage is greater in some trout habitats than in others. Where valleys are narrow and stream gradients steep, damage will be least. Where valleys are broad, gradients slight and

water already near the critical temperature from the outflow from natural ponds and swamps, the damage will be greatest. Unfortunately it is in the latter type of habitat that beaver thrive and multiply.

The only general exception to the ill effects of beaver on trout is in the high country of the western mountains. Here, with the source of the streams in eternal snow, the water may be too cold and the beds too steep and shallow for optimum growth of trout. By warming and ponding the water, trout are often benefited since increased acidity and increase of trash fish are negligible factors here. But elsewhere beaver and trout do not mix well for long.

In summarizing, we find quite a conflict of interests. Some game men may look on the beaver as a benefactor of waterfowl habitat. (My observations suggest that while black ducks are sometimes found in beaver ponds, there is very little duck food in such ponds.) Others stress the economic value of beaver pelts. Then we have the spectator interest in beaver—the tourists and other people from cities who take a great interest in beaver dams, houses and other works.

I believe the economic value of the pelts is grossly over-rated. Last year in our special season with all restrictions removed, 37 man-weeks of trapping secured 102 pelts for a total return of \$2,599, or an average of \$70.20 per man-week. State-wide in the regular season, 6,002 were taken by 1,895 trappers, giving an average of a little over three pelts or approximately \$75 per man (for three weeks). These figures allow nothing for return to the landowner and nothing to compensate him for the timber destroyed by the beaver. When these factors are all taken into consideration, the beaver may well add up to an economic liability.

People sometimes inquire why beaver are so bad on trout when they were here when the white man first arrived. That's a fair question. There is good reason to believe there are more beaver in many areas today than there were under primeval conditions because then the white man had not disturbed the natural controls of the beaver, including the Indian. Under those conditions, as in a few of our great primeval National Parks today, beaver were probably all right and did not interfere with trout fishing to any great extent; but today with both beaver and widespread logging, trout waters are not able to stand the double onslaught without serious impairment.

The Pennsylvania Fish Commission

Insures Bass Fishing

In Newly Impounded Waters

Photographs by George Gordon, Fish Commission Photographer



1 ▲ Both the largemouth and . . .

2 ▼ . . . the smallmouth bass . . .





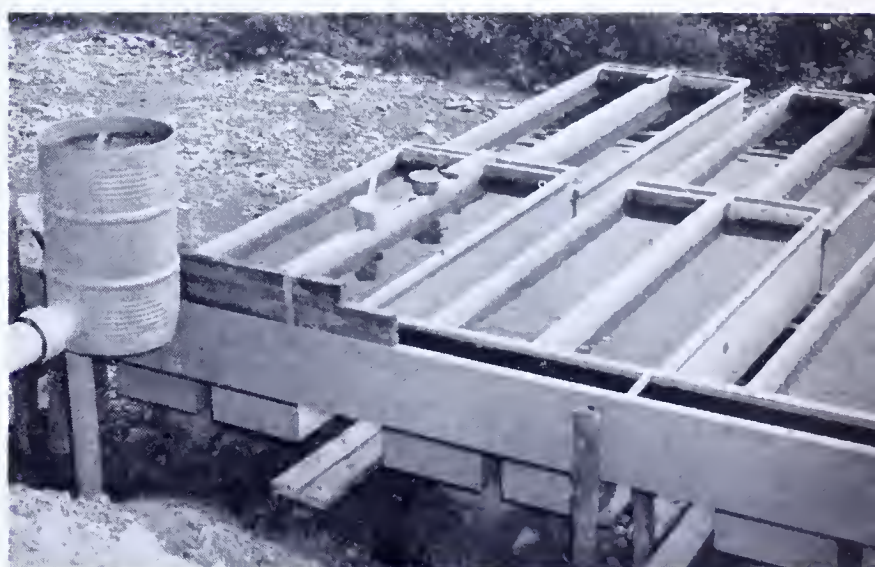
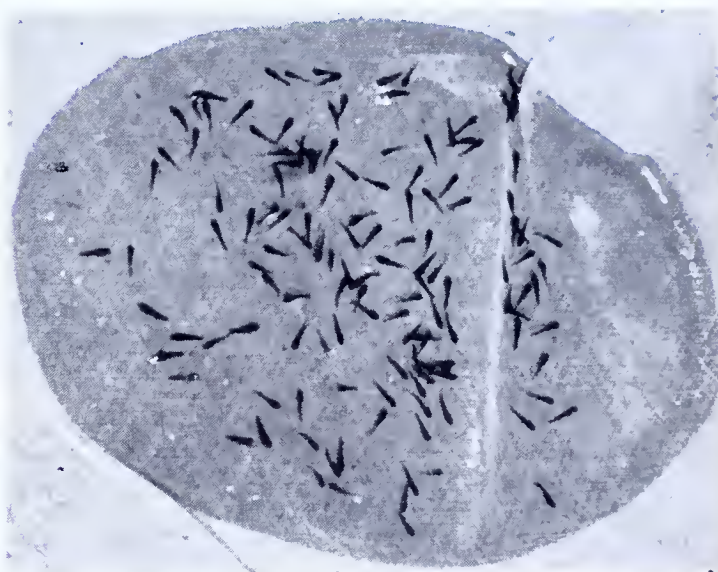
3 ▲ spawn in lakes in May and June (see front cover for nest).

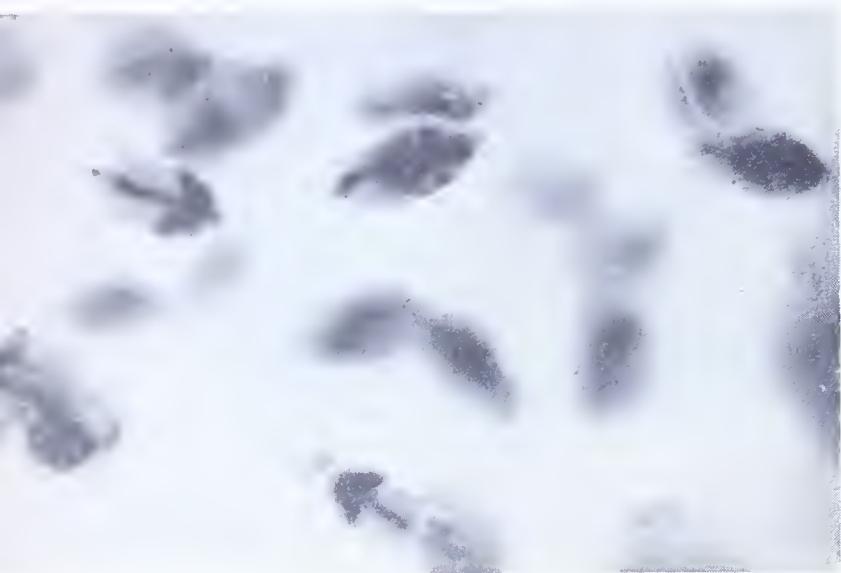


5 ▲ and reared in wire nursery boxes—often in the same lake where collected—or . . .

6 ➤ . . . in metal tanks at the hatcheries.

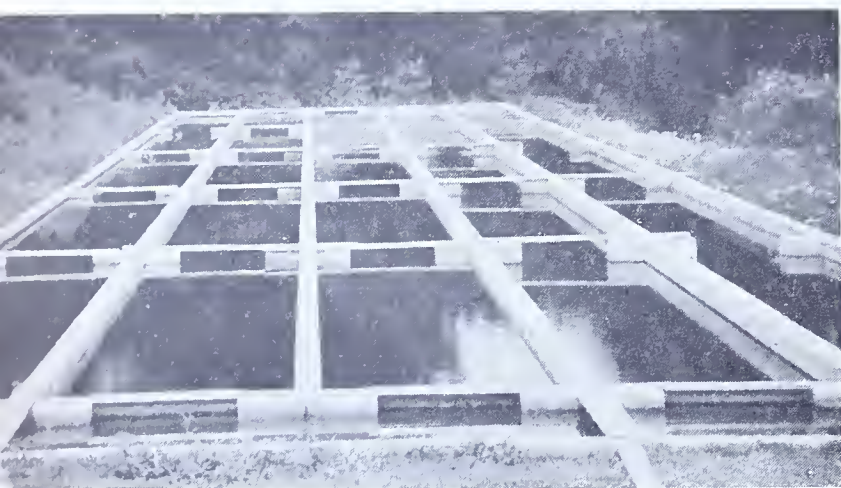
4 ▼ The baby bass or fry are collected in fine nets from Commission nursery waters . . .





7 ◀ The first food of bass fry are small crustaceans called Daphnia, which are . . .

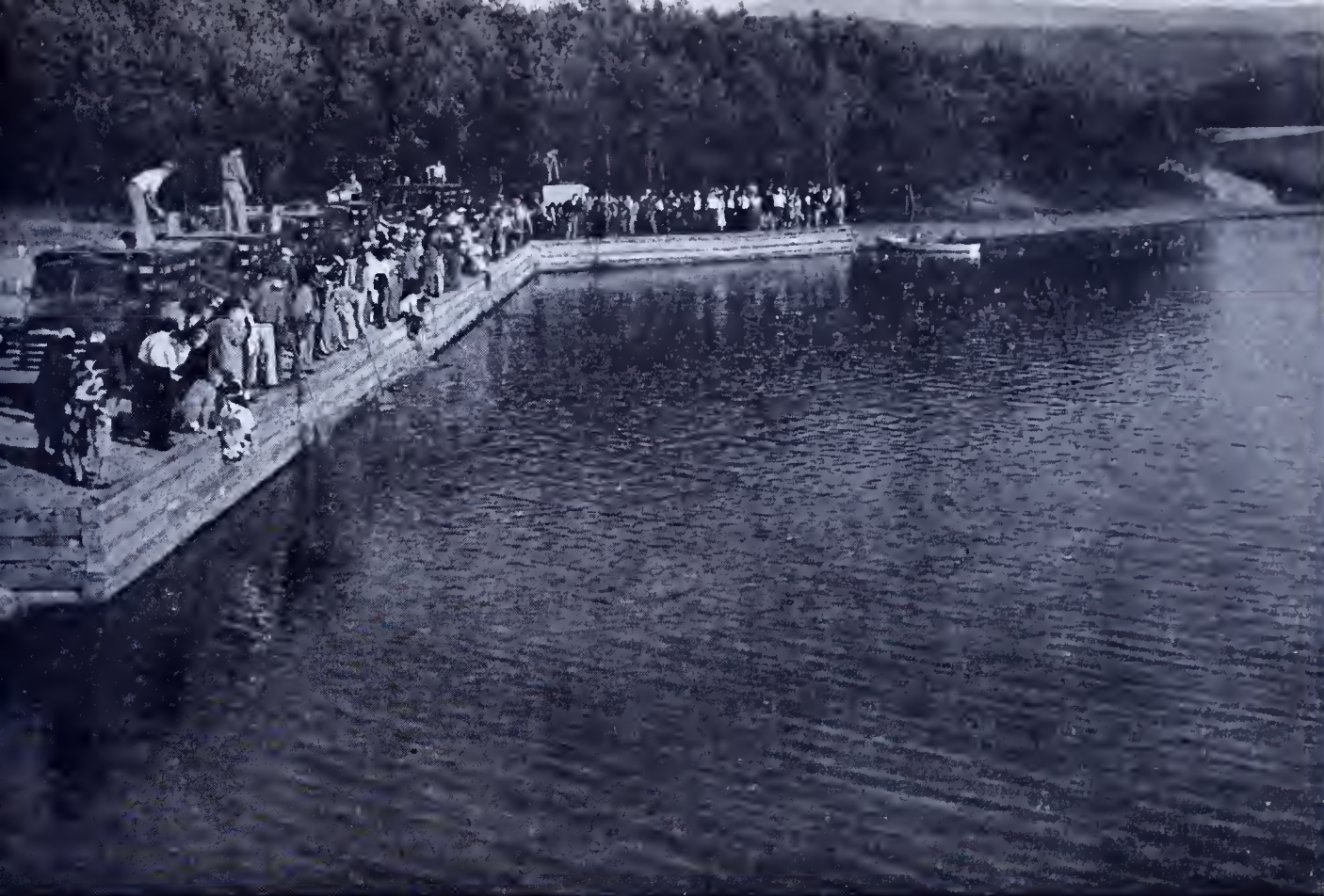
8 ▼ . . . produced in huge quantities at the state hatcheries . . .



9 ▲ . . . in special Daphnia-rearing ponds.

10 ➤ At a later stage, bass fingerlings are fed a diet of fish and meat.





11 ▲ Newly impounded waters and others which are suited to these species receive plantings of bass to establish the desired species and . . .

12 ▼ . . . to insure fishing recreation for a major game species in the waters of the Commonwealth.





Hugh Halliday photo from National Audubon Society

IN HIS cadet uniform, indeed a military figure with a militant personality, the Belted Kingfisher is built for fishing since fishing is strictly a business with him. This feathered gentleman with his clacking sound much like the click of a reel puts verve and ginger into our Pennsylvania waterscape. Of the two hundred species of this family known throughout the world, only three live in North America. In Pennsylvania, however, there is only one kind of kingfisher, the eastern belted kingfisher, sometimes known as the "Lazy-bird." For some fishermen their sport may be a lazy one, but to the fly fisherman treading on a stream bed of seemingly greased cannonballs, it is pleasant work. Certainly the kingfisher ranks as the active type of fisherman, although he is content to do his fishing from exposed perches that overhang still waters. Unlike some of the herons that fish in groups, the kingfisher fishes alone, like many fishermen. Kingfishers want no contact with man and seem to show a rather indifferent attitude to the angler. Even other kingfishers are not welcome except during the mating season, about the only time these birds are seen in pairs. Indeed, the kingfisher is most possessive about his favorite fishing ground and will battle intruders of his own kind whenever they invade his stretch of stream.

Do these birds mate for life as does the eagle or fox? How long can kingfishers live? These are only a few of the many questions which scientists ask, for information on this bird is far from complete.

And when people lack facts about a creature, they often invent them or believe what they want to believe. For instance, the ancients fully believed kingfishers nested in floating nests on the still waters of the ocean.

Patrol of our Pennsylvania streams and lake shores, the Belted Kingfisher is a military figure with a voice like the click of an angler's reel. He's a colorful bird but as can be seen he's mighty light with the hair brush!

Pennsylvania's Original Fisherman



THE KINGFISHER

ace angler with duo-vision!

By Stephen Collins

Sketches by James Baird—Botany Department, Rutgers University





Allan D. Cruickshank photo from National Audubon Society

◀ Like peas in a pod these young Kingfishers will soon be able to dive bomb for their fish dinners. Equipped with vision in water as well as in the air, a sharp beak, these birds are excellent anglers.

▼ One of the few birds to build their nests in burrows which they tunnel several feet horizontally into a stream bank, wonderful tales are told of how Kingfishers, with great architectural skill use fish bones to support the earth above their nests.

"Halcyon days" were given to those calm days around the shortest day of the year at which time people believed these birds nested. The scientific name for our American bird comes from the Greek and Latin (*Ceryle alcyon*) which, when translated, means "the kingfisher of kingfishers." The ancients believed this bird was the transformed spirit of the woman, Alcyone, who threw herself into the sea after learning of her husband's shipwreck.

The kingfisher's head crest appears rather ragged. Females can be told from males by their extra reddish-brown breast bands that wash down their flanks. Actually, then, the females wear the brighter colors, a novel situation in the bird world except in a few cases in which the males rear and care for the young. It is supposed that the birds with duller colors attract less attention to the nest.

Kingfishers can be seen year 'round in Pennsylvania, but a majority of them go south, particularly females. They return to this state from late February to late March. While some stay around all winter and many linger until late into the fall, it is the lack of food or inability to get at it rather than cold weather which causes them to migrate.

Slightly larger than a robin, the kingfisher is well-adapted to the life it leads and manages to avoid the modern pitfall of becoming too specialized. Its diet permits it to survive

where a bird with fussier tastes would soon perish.

Long before mankind found the value of dark glasses, this bird's eyes with an abundance of red-oil droplets in the cones of the retinas of its eyes located finned prey with ease. These droplets have been found to reduce glare due to scattered light as found on water and they correct or minimize color errors in vision. The kingfisher has three times as many of these oil droplets in its eyes as the average songbird. Furthermore, kingfishers have clear vision in both air and water without any effort of accommodation as they pass from one medium to another. As they enter water, their eyesight is aided by binocular vision, so important in estimating distances.

Like the heron, the kingfisher grasps with its bill, but unlike the heron, this bird's tiny, weak feet with the toes joined together (but not webbed) are of little value except in perching and kicking dirt out of its nesting hole. While the heron's long neck provides flexibility and its legs a convenient perch, the kingfisher must plunge for its prey as does the osprey or fish hawk. The osprey, of course, seizes its prey with horny, padded talons whereas the kingfisher is always limited to "small fry" which it carries in its beak.

Although usually seen flying close to water as it hunts, the kingfisher when traveling often flies quite high. In California such a bird was timed in



Allan D. Cruickshank photo from National Audubon Society

steady effortless flight by an automobile traveling 36 miles per hour. If an aeronautical engineer asks about this bird's "wing load" he can be told that this six ounce bird loads one gram to every 2.45 square centimeters of wing area. Higher ratios are found in soaring birds such as turkey vultures. The average wing beat is 2.4 per second or about the same as the common crow. Flight consists of five or six beats and a glide.

Like the sparrow hawk, the kingfisher, in the absence of a perch, may temporarily hover in place helicopter-fashion to get a better look at its prey. A young bird leaving the nest hole for the first time can fly almost immediately without practice as does a young house wren. At times its flight

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To Fish With Ghosts

By JOHN F. BOYLE

Ghosts of the past have a habit of springing to life when anglers rub elbows with history while fishing legendary locations so rich in tales of toil, triumph, blood and misery.

LOVERS of history will find in Pennsylvania a treasury of landmarks unrivalled by any other state in the Union. Within its borders our nation was founded, its Constitution adopted and were fought those battles that established and preserved us a nation. Men and events have left an aura of romance to localities scattered throughout the length and breadth of the commonwealth. Moreover, nature lovers are treated to a medley of fascinating picturesque scenery that delights the eye and stirs the blood.

Near Valley Forge, for instance, flows the well-stocked Valley Stream. What a diversion for frustrated nimrods to visit the spot where Washington and his little ragged army spent the cold, dreary winter of 1777-8. Such a trip ought to fill our hearts with reverence and gratitude for those heroes who left their bloody footprints on the snow while Howe's well-fed army was quartered in Philadelphia. Or, vice versa, why not take along your rods and reels, you anglers, while paying a visit to this historic site, so dear to the heart of every true American?

Perkiomen Creek provides anglers with a variety of fish, but how many know that on its banks is situated Mill Grove Farm, the home of the world famous Audubon? Here he began his sketching and classification of birds that placed him in the foremost ranks of ornithologists everywhere.

Fishermen who try their luck on Mill Creek, in Berks County, might care to turn aside and pay a visit to

Daniel Boone's homestead at Baums-town, about eight miles southeast of Reading, near U. S. Route 422. Fish and game provided a great deal of the victuals consumed by the early pioneers so don't feel too badly if your creel isn't full—you won't starve. Just think of what a fruitless day meant to Boone and his associates.

Lehigh County has many trout streams; Big Trout Run, Cedar Creek, Iron Run, to mention a few. It is also the birthplace of the intrepid General Anthony Wayne whose daring deeds earned for him the sobriquet of "Mad Anthony Wayne." At Stony Point, in the Revolutionary War, he led his men in the capture of that stronghold which they took at the point of a bayonet without firing a shot.

Blair, Dauphin and Centre counties are all provided with trout streams. As a matter of fact, Centre County has perhaps the greatest number of trout streams in the state. These counties have also what might perhaps be interesting to everyone, namely, limestone caves, which although not particularly of historical interest should be a source of interest to all. Penn's cave in Centre county is unique in that it is the only cave in Pennsylvania that can be visited by boat only.

By the way, communism (spelled with a small "c") is not new to Pennsylvania. While fishing the Connoquenessing Creek, near Harmony, Beaver county, one could pay a visit to this town where in 1803, George Raff, of Wurtemberg, Germany, with three or four others purchased land which they intended to use as an experiment in communism. They called the town Harmony. The next year three ship-

loads came over. They wore the same style of dress, and had their goods and possessions in a common stock. The whole affair ended in bankruptcy.

Those who fish the Susquehanna should not fail to visit the "Wheatland" farm of the only Pennsylvanian to reach the White House. It is located near Lancaster. Besides being president he served as Senator, congressman and as ambassador to both England and Russia. He is the only bachelor president, his niece, Harriet Lane performing the duties of a White House hostess.

When fishing the Conewago Creek, in Adams county, why not follow it into Gettysburg where the Confederacy reached its high water mark and Lincoln made his famous address? In this state where freedom had its birth, "this nation, under God," had a new birth of freedom. Although the South struggled on for two more years, it was here it received its mortal wound. If it had broken through, there was booty and plunder enough to have perhaps carried it on to victory.

Conemaugh Lake and River fishermen would do well to visit Westmoreland, Cambria county, where the Wyoming Valley Massacre took place in 1778, when a band of Tories and 700 Seneca Indians under Colonel John Butler entered the valley and attacked the garrison of Forty Fort (so called from the number of original families) numbering 300 men under the command of Colonel Zebulon Butler. The defenders were driven from their shelter with the loss of 100 men. A half-breed woman called Queen Ester tomahawked fourteen with her own hand in revenge for her son's slaying, near a rock that bears her name. And, of course, on the banks of the river is Johnstown, noted for its disastrous flood which took place May 31, 1889.

Wherever we go in the Keystone State we will hear authentic and legendary stories that add to the pleasure of angling—or hunting for that matter. Besides halo of song and story we are treated to a panorama of wooded hills and mountains; well-kept farms; wide vales of stately rugged beauty; lovely lakes and streams, all spread before our eyes by the Supreme Artist "that sparkle on the inward eye, that is the bliss of solitude," so we ought to be proud of our state, which someone has said, "has everything."



By DON SHINER

they can be interchanged or replaced with one of heavier or lighter weight without damage to the line.

Sinkers have come a long way from the time they were simply pieces of moulded or pounded lead material. They are a necessary part of angling, and, by having a thorough know how in sinker selection, fishing can be more successful.

Shown here are selection of the most popular sinkers and how they are used. Study the methods shown, better still, tear out these pages and keep them in your tackle box for a handy reference guide when rigging up the tackle for a day of fishing. Sinkers play a big part in fishing, so big in fact that without a good selection or a knowledge of how to use them, the fisherman may find himself "sunk!"

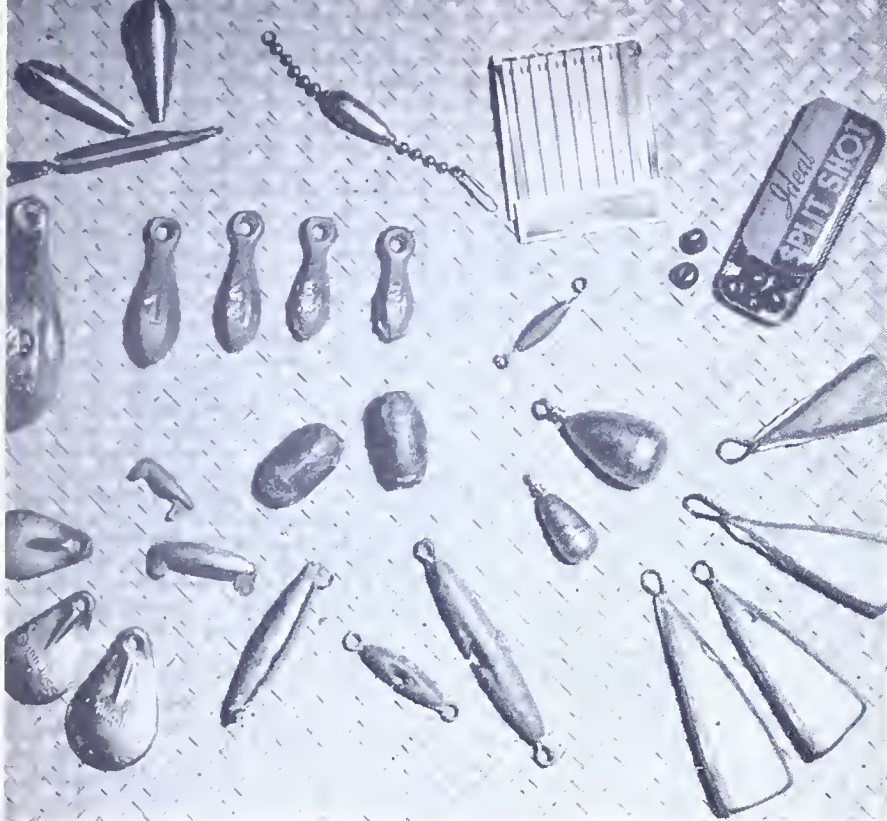
SINKERS are thought of as simply lead weights which fishermen attach to their lines to hold the baits close to the bottom of a lake or stream. It is true, sinkers are simply lead weights, but today, like other tackle, great strides have been made in sinker design and the methods of using these weights. Today there are sinkers for still fishing, sinkers for trolling, sinkers for casting and spinning, and sinkers for the ordinary run of bait fishing as done for trout and bass. Every method of angling has a specially designed sinker and to be successful, the angler should know the advantage of one type sinker over another and which of them to select and when to use them.

For example, when drifting a worm down a rather fast current, a small amount of lead is needed to keep the bait close to the bottom. For this there is the split shot and the strip or wrap-around strip of lead. When trolling for walleyes and lake trout, where the lure or bait must be kept on the bottom, the new snagless type sinker is ideal. This type sinker will seldom become fouled among rocks and stone ledges as is the case with some of the other sinker designs. Still another example of a highly specialized sinker is the egg-shaped or oval sinker. This type is used when bait fishing for bass or carp. Generally when these fish seize a bait, they stage a long run and, if they feel the drag of a weighty sinker, very often they will drop the bait immediately. Here's where the hollow oval sinker comes into the picture. The line is threaded through the sinker and tied to a short piece of wire or wood which will prevent the sinker from sliding down to the baited hook, but when a fish seizes the bait and runs with it, the line simply runs through the sinker and the fish is none the wiser.

There are also specially designed sinkers for adding to the line or lure so that a greater distance can be achieved when casting or spinning. Some of these sinkers can be attached to the line without the need of unfastening it from the lure, and further, are made in such a way that

▼ What sinker to buy? It's a question facing many of us when visiting a tackle shop. There are sinkers for still fishing in lakes, for still fishing in fast moving streams, there are also sinkers for trolling, for casting—in short, buy sinkers for the type fishing you plan to do.





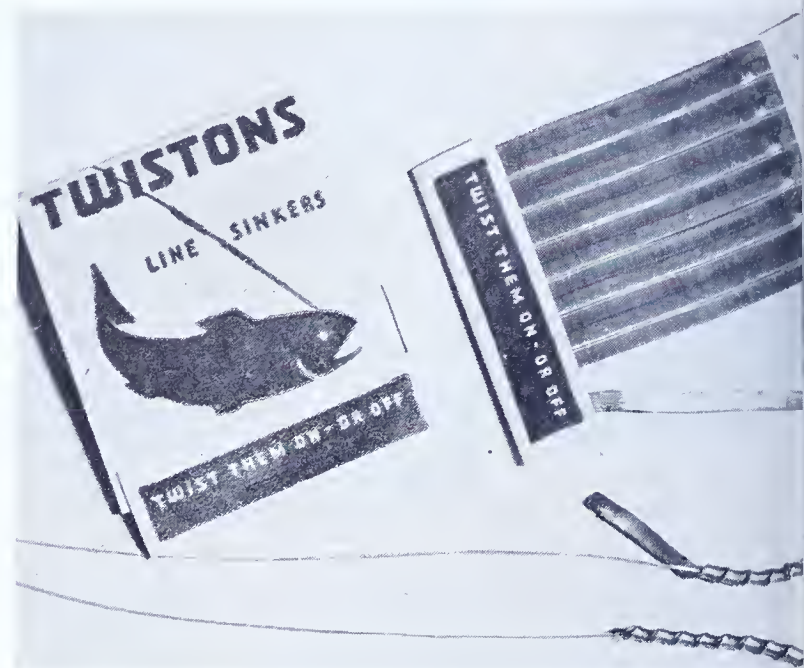
◀ Here are a few of the most popular types of sinkers.

Top row shows interchangeable casting weights, beaded chain and sinker, lead-strip or wrap-around sinkers, split shot.

Second row shows bank sinkers in weights of 4 ozs. to $\frac{3}{8}$ oz., the pinch-on variety, the oval or lead shaped sinker, bass casting sinker, reversed pyramid sinkers in various sizes and in center bottom, is the adjustable loop-on sinker.

Each type sinker is used in a different way depending on type fishing being done.

▼ The lead-strip sinker is wrapped around the leader or line. This sinker is used when a small weight is needed to sink bait to bottom or when worm fishing for trout in rather swift water. One variety of wrap-around lead strips comes in a booklet, similar to book matches, and is very convenient to carry.



▼ Split shot. This type sinker is a small ball on lead in various sizes that have been split open so it can be clamped to line or leader. Used when a small weight is needed to sink bait to bottom, in trout fishing, etc. One or two split shot can also be attached to line to make bait or lure somewhat heavier in order to cast with a spinning or casting rod.



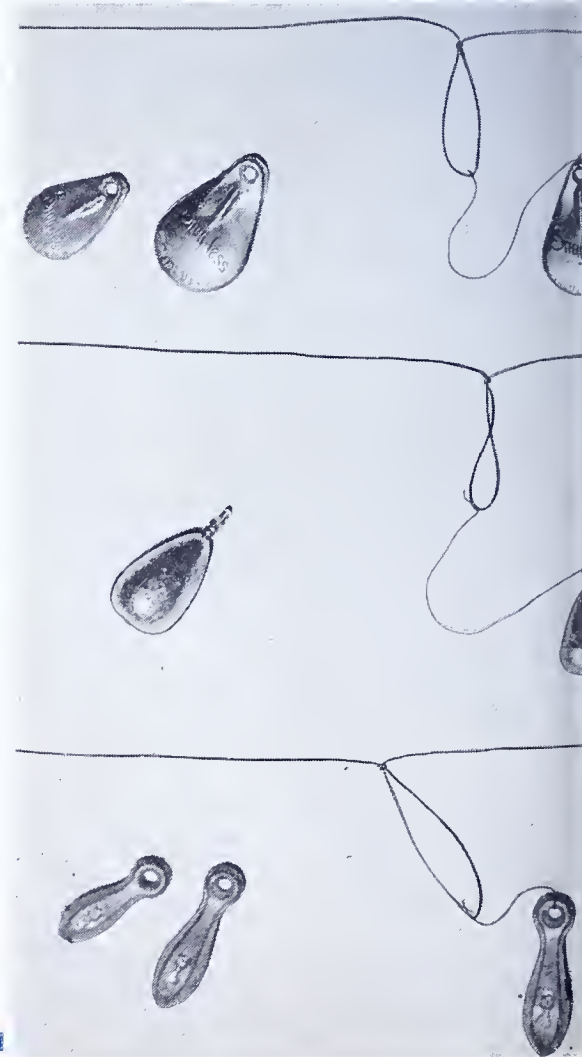
◀ Reading from top downward is the adjustable loop-on sinker. Line is doubled through eyelets, then looped over cut-out center portion. This sinker is generally used when casting.

Second is the clamp or pinch-on type sinker. Line runs through slot cut through sinker and the tabs on end wrap over line.

Third is the oval or egg shaped sinker. This sinker has hole through center for the line. A small stick is then fastened below sinker. This sinker holds bait to bottom of stream yet the fish can seize bait and run with it without feeling drag of sinker.

Fourth is the adjustable ringed sinker which can be used as a connection between line and leader by means of the wire loops in each end.

➤ When trolling use these sinkers and attach them by this method: Top shows the patented, snagless type sinker fastened to loop in line by means of a line of lighter breaking test. If sinker becomes fouled, the weaker line will break first, causing only the loss of the sinker.





◀ When still fishing for suckers and catfish, always place the sinker on end of line with hooks above sinker. Shown here are the bass, snag-proof, triangle and bank sinkers tied on line below hooks, ready to be used.

▼ Here are two other methods of using sinkers when trolling. Top arrangement shows a bank sinker fastened above lure by a line of lower breaking test which is fastened between two loops in line.

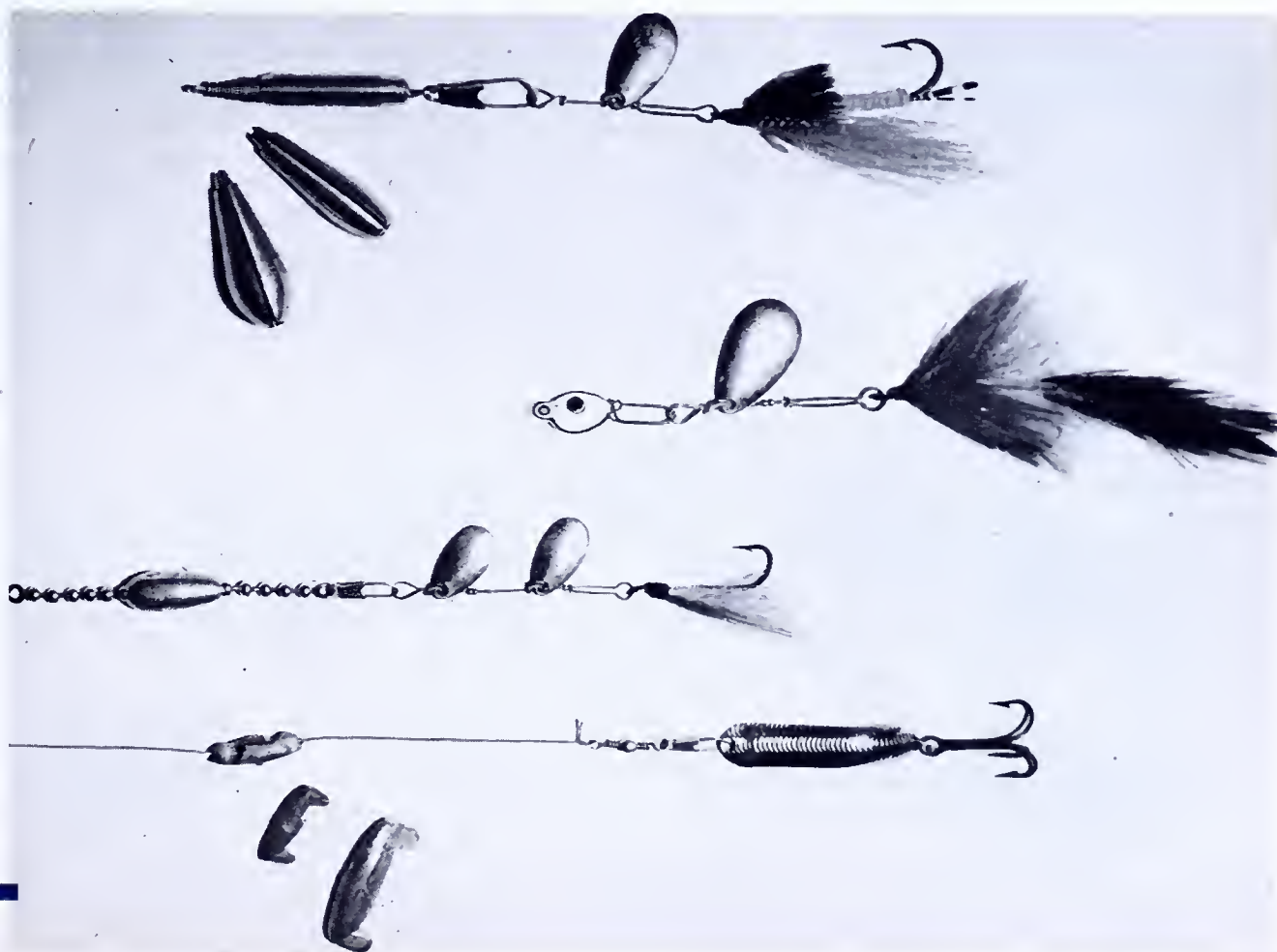
Bottom rigging shows a three-way swivel in use, with line and lure attached to one eye while sinker, on lighter test line, is attached to another. Both methods are ideal when trolling for walleyes and lake trout.



▼ These sinkers are designed for attaching to line adding weight to the lure when casting or spinning. Top shows the clamp or pinch-on style sinker in place above lure. Second is the beaded snap and sinker. This variety acts like a swivel for lures that ordinarily twist line and also adds weight to a small lure such as a spinner and fly.

Third is a combination weight & snap, which is attached directly to lure.

Fourth is the interchangeable casting weight which can be attached to a lure by means of a snap.



LAST week I went to Vermont to talk about spinning to a group of Kiwanians. My host had a place on a trout stream and lost no time in getting out his spinning tackle.

"Can't make this outfit work right," he complained. "Line goes too high in the air. Wind catches it. Lure goes too far and in the wrong direction. Trees and bushes catch it. Sometimes I see a trout rise back of a rock. Brother, as far as I am concerned, that trout is the safest fish in the state. I couldn't drop my lure near enough for him to see it if you gave me a million dollars! What do I do wrong?"

Watching him cast reminded me of the way a Southern darky beats a mule. I shall not pollute innocent minds by describing his errors. He reminded me again of how much trouble a fisherman can borrow when he does not bother to learn the simple rules that make accuracy in spinning so easy.

Those who adopt the "mule beating technique" in spinning immediately put efficient casting behind them. Merely a flip of the wrist will accomplish as much or more than full arm exertion. Use a line and lure that match the rod in strength or weight and confine casting seventy-five percent or more to wrist action; twenty-five percent or less to forearm action, and use the upper arm not at all. In fact, with the Side Cast and some others, best results are obtained by using wrist action entirely. Take it easy, and let the rod do the work!

Most errors in accuracy can be overcome by using "forefinger control" of the line. For efficient and comfortable forefinger control, the rod must be so held that the tip of the forefinger can be placed against the front face of the reel spool quickly, securely and easily, as is shown in illustration four. In this picture, the design of the "Ru Sport" reel shown makes it most comfortable to put two fingers ahead of the leg, and two behind. This grip is normal with most reels, but a few are held most efficiently with only one finger ahead or, in rare cases, three. The design of the leg of the reel and the length of one's fingers dictate the method of gripping the tackle. The important thing is to do it so the forefinger can be placed against the front edge of the reel spool comfortably and securely. It is well to stress this point because the proper use of the forefinger is vitally important to accuracy in spinning.

Accuracy in Spinning Made Easy!



By JOSEPH D. BATES, JR.

Before making a cast, the line is held over the tip of the forefinger, as shown in illustrations one and two. For greatest accuracy, hold the line over the tip of the forefinger, rather than farther back in the cleft of the joint. The forefinger should be crooked only enough to prevent the line from sliding off. This nicety of adjustment affords *instant* release of the line—a rather important point when we consider that a split second of delay can cause the lure to go wide of its mark!

The line, of course, is released merely by pointing the forefinger at the target as the rod is stopped at a position over it. Keep the forefinger in this extended position while the lure is traveling through the air.

As the lure approaches the target, we may want to slow it down in flight; especially when a cast of maximum distance is not needed. This helps the lure to drop lightly on the water and helps to remove unnecessary slack from the line. To do this, bring the extended forefinger nearer to the reel spool (as in illustration three), allowing the uncoiling line to slap against it. This brakes the line—and the nearer

to the spool we put the forefinger, the greater is the braking effect.

If we want to stop the lure anytime during its flight, all that's necessary is to touch the front face of the reel spool with the forefinger (illustration four) and to keep it there. This snubs the line, stopping the cast instantly. Suppose we want to cast within inches of a log or rock. As the lure approaches its objective, we brake the line slightly with the forefinger. Just before it reaches its mark, we snub the line by placing the forefinger against the front face of the reel spool. By so doing, we have as absolute control of the lure as our reflexes will allow. With a bit of practice, the lure can be landed within *inches* of its target!

This forefinger control helps greatly in taking slack out of the line. Too much slack line results in lost accuracy and in sloppy casting. The forefinger prevents excess coils of line from leaving the reel. It helps to straighten out the line in the air, and it helps to make the lure land lightly on the water. These results are accomplished best if the lure is stopped *just before* it touches the water, so that it will drop to the surface on a tight line. By so doing, we insure that the lure will land hook forward and that it will not sink too deeply and become snagged. We make it possible by forefinger control to hook a fish if he strikes just as the lure lands. We have absolute control of the line and of the lure at all times. The line is properly tight in the air and on the reel. Forefinger control eliminates fumbling entirely.

Now, let's make a cast across stream, or downstream. After the cast is made, we may want the lure to sink deeper, or to travel downstream for a short distance with the current. To do this, let up on forefinger pressure enough to allow the desired number of coils to leave the spool. Suppose a fish strikes! Forefinger pressure and the tight line which it affords allow us to hook him. We do not turn the reel handle too close the pick-up arm until we are good and ready to do so. How much simpler this is than using the fumbling method of closing the pick-up arm to stop the cast!

If we need temporary added braking power over that supplied by the reel brake, the forefinger provides this also; instantly, in any amount desired. By pressing the forefinger against the front face of the reel spool, any amount of added braking power can be obtained.

All this can be done with any ortho-

dox spinning reel. The extremely efficient design of the "Ru Sport" reel spool aids forefinger control more than does others because this spool has a curved front made especially for this purpose. Before buying a reel, it is well to try it on the rod to be sure that its design is comfortable for its owner's hand, as has been described.

Selection of lures is important to accuracy in that some of them are influenced by wind more than are others. When fishing on windy days, a streamlined lure will cast more accurately than one of erratic shape, especially one rigged with hair or feathers.

The type of cast to be used also affects accuracy. With the "Overhead

Cast," the angler operates in a single vertical plane, making this cast more accurate when great distance is not desired. The "Overhead Cast" has the disadvantage of a high trajectory which may put too much "belly" in the line, especially on windy days. Stopping the lure by forefinger control before it hits the water helps to remove this difficulty.

The "Side Cast" is most often used and can be amazingly accurate with forefinger control. It has the advantage

of casting the lure of a low trajectory to the greatest possible distance.

When one uses forefinger control and lets the rod do the work, accuracy in spinning becomes easy. As in any other sport, there is a right method as well as several others which are more difficult and less efficient. Forefinger control is the basis of accuracy in spinning. With it, spinning anglers can enjoy more fun fishing, can catch more fish, and can save many "hang ups" and lost lures!

FOREFINGER CONTROL IN SPINNING

(Photos, courtesy Rockland Tackle Co., Inc., Suffern, N. Y., are taken from their booklet "Secrets of Success in Spinning" with permission. Copies of this booklet can be obtained by sending 25c to the above address.)



1. Turn cup to bring pick-up roller nearest to red grip. Pick line off pick-up roller with tip of forefinger.

3. As cast is made, point forefinger toward target, thus releasing line and lure.

2. Turn cup backward so pick-up is in downward position and line is disengaged from it. Open pick-up arm.

4. Lure can be slowed down by lowering forefinger toward reel spool; can be stopped by touching forefinger to reel spool.





in a QUANDRY over QUARRY BASS

By BILL WOLF

EVERY fisherman in Pennsylvania knows the Old Quarry Hole. In a State pockmarked with abandoned, water-filled quarries, there is bound to be one near each community, and the fish that live in your own local Old Quarry Hole—wherever it may be—probably have caused more cursing, deep thinking and scheming than any others in the Commonwealth. The reason for this is that quarry fish, especially bass, seem to be the most perverse, contrary, insolent and nose-thumbing beasts in the world. It is a rare angler who hasn't had the experience of trying for hour after hour to interest some fat pig of a quarry bass in all kinds of lures and natural baits, only to slink home eventually, licked by the utter indifference of the fish.

There is nothing that can turn a colder shoulder to a person than a quarry bass. They usually are visible, floating in a world all their own just under the surface of the clear water, motionless as a contemplative Buddha except for a slight finning to maintain their position, inscrutable and arrogant. There have been a few times when I have been tempted to throw rocks at fish, and it has always been quarry bass that aroused this primitive emotion. Only the fear of looking ridiculous has kept me from jumping up and down on the banks with rage, screaming and throwing things at the bass, tardigrade-like slugs that they are.

Drop a plug near them, and they idly move away, clearly indicating that they are annoyed by the disturbance of their day-dreaming. Cast live bait to them, and they will sniff at it, turning up their ski slope noses. They simply aren't interested.

Nevertheless, they can be caught. I don't especially like the method, but it does illustrate the fact that no fish is entirely invulnerable, and that all have some weak spot. Before going into methods, however, let us examine the reasons why quarry fishing is so difficult.

The Old Quarry Hole can range in size from a small pond to a fair lake, depending upon the extent of the digging operation that formed it. There are different kinds of quarry holes, too. Those from which building stone, or limestone for crushing, were taken usually have sheer banks, and only occasionally do they possess a shelving shoreline. If they have such a gradual slope into the water, it usually occurs only at one small end of the pond; all the rest of the bank is straight down, and the water level ordinarily is well below where the angler must stand. Then there are quarries from which gravel and other building, or road-making, materials have been taken out. These may not have as sheer banks as the others, but water edge vegetation is almost as slow to take hold in them as in the stone quarries. In other words, nearly all quarries that fill with water are unnatural lakes, possessing little of the plant life and cover along the shore that natural lakes have. They are barren bodies of water as far as shore vegetation goes.

Furthermore, most are extraordinarily clear since there is no current. What little soil washes into them from the surface in violent storms sinks almost immediately to the bottom. The average limestone quarry is crystal clear, of a heavenly blue on sunny days, and a bright pea-green even on dull days. Visibility is perfect and

you can see fish many, many feet down.

Nearly all have been stocked with fish in some manner. Stocking occurs naturally in some cases when water birds, with fish spawn clinging to their feet from some other pond, alight in a quarry hole. This accounts for some odd species appearing mysteriously in a quarry hole where local residents are positive they were never stocked. Sometimes the State Fish Commission stocks quarry holes, usually with black bass, bluegills and sunfish; sometimes interested sportsmen of the locality will do it. Fishermen using live minnows in attempts to catch game fish already in quarries also accidentally introduce new species when their bait gets off the hook and remains to reproduce.

It is significant that most quarries do not contain many bass, but those visible are large, fat and contented. A relatively few fish in the Old Quarry Hole grow to huge size, but the waters do not exactly teem with fish of all sizes. Obviously, they are well-fed, yet they never seem to eat! It's an unusual sight to see a quarry bass taking food, although the bluegill and sunfish often will dimple the water with their feeding. From sunup to sundown, the bass just seem to idle the hours away. The same thing is true of the big brown trout sometimes found in quarry holes.

The answer to why these fish are so difficult to catch can be found in the description of their living conditions.

If the fish are so highly visible to you, the angler, then you must be just as visible to them. They live in clear, undisturbed water; and, if out any distance from the bank, as they nor-

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ALL too many fishermen, especially the confirmed bass fishermen, are passing up some fine sport when they fail to adapt their fishing technique to the pike-perch or walleyed pike as they are often called. This fish being a true member of the perch family should probably be called pike-perch. However, from the wide variety of names such as dore, pickerel, yellow pike, Susquehanna salmon, pike-perch and walleyed pike the usage of the term walleye or walleyed pike seems to be more generally accepted.

Fishing for game fish can be broken down into artificial and natural bait fishing. In the case of walleyed pike, the bait fisherman, as a rule, will outscore the plug caster, if the caster is not experienced in taking walleyes. If experienced, the positions are usually reversed. There is sound reason for the success of the bait fisherman. He gets his bait down deep. The caster works his plug or other artificial too close to the surface.

Walleyed pike will break all accepted rules but 90 per cent or more of your strikes in river fishing for walleyes will be secured with your plug just about bumping on the bottom. The plug must be worked slowly and here again the average caster through oversight or impatience passes by some exciting sport and delectable eating. You can't reel fast and consistently take walleyes.

How well I recall my first pike of 20 years ago. It was on the Allegheny River, my favorite stream. I had started plugging at midnight for bass with only fair success. The morning fog was lifting and the sun's rays stabbed at openings in the fog bank as I waded out to the edge of the Barn Hole and started casting in a tired, haphazard manner

By W. T. Patterson

into a deep eddy. More from fatigue than disgust I stuck the rod under my arm, after a short cast and started to light a cigarette. Just as I struck the match the rod was all but pulled into the water. The heavy, surging pull convinced me I had a giant bass until a few minutes later when a 26-inch walleye was netted. With spirits up I beat the eddy into a literal froth with hurried casts. The keen edge soon wore off and a tired fisherman was about to move on when memory of a magazine article gave me new hope. I had read where walleyed pike fishing must be done close to the bottom. Undoubtedly my plug had gone down deep while lighting the cigarette. With this thought in mind, I tossed a long cast to the tail of the riffle and allowed the plug to sink. As long as the tremor in the rod tip was transmitted by the choppy action of the plug no attempt was made to reel in. When the plug settled I gave the reel a few rapid turns and again awaited the end of the choppy action. Four or five minutes had elapsed and the plug had traveled some 15 or 20 feet when a lunging strike almost tore the rod from my grasp. After a spirited tussle I landed a heavy girthed walleye of 24 inches. This same technique, and such it is, earned three more hefty pike in the next hour. You may rest assured it was a proud young fisherman who took the long way back to the car past as many other fishermen as possible.

A good clue to the lack of familiarity with walleyed pike were the remarks of 70 to 80 per cent of the fishermen who saw my catch. They wanted to

know what they were, where they were caught and naturally what bait or baits were used. Two days later the local hardware at Tionesta was sold out of this particular runt type plug but the fishermen who bought them probably dubbed me a liar when they used them in the conventional way of casting or plugging.

Enough of this reminiscing! Let's go pike fishing in a river, then we'll try a lake if they aren't hitting.

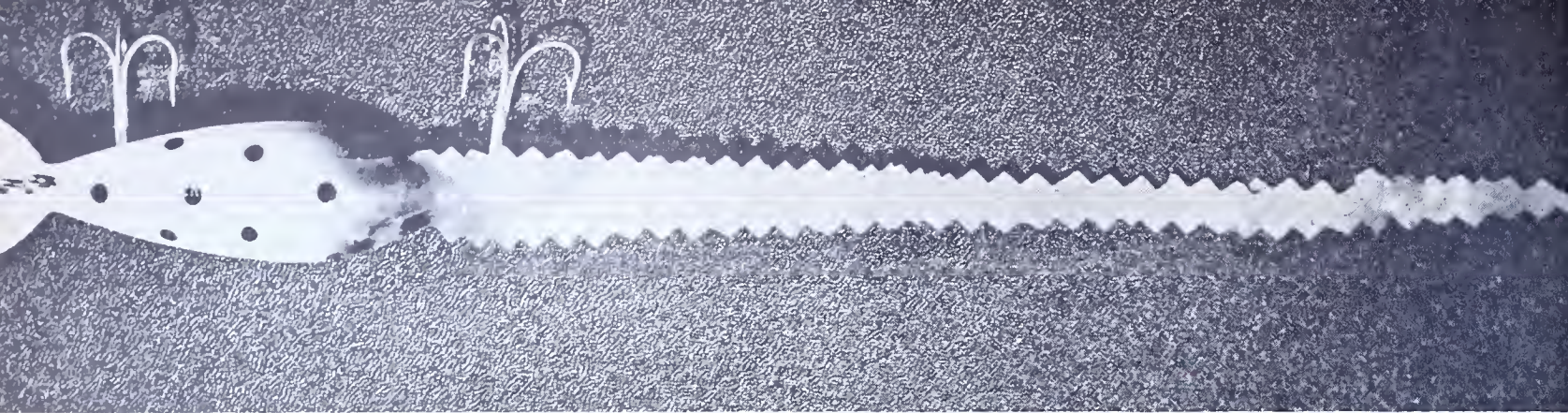
In river fishing for walleyed pike you may either wade or fish from a boat. Years ago I preferred wading. Now I fish from a canoe. It has two advantages, as does any craft for fishing . . . you can retrieve hooked plugs, and "shank's mares" are not as tired when you finish a day or night of plugging.

I have a preference for the heavy riffles that have their surface broken by rocks with a deep pool or series of swirling cross currents at the lower end of the riffle or rapids. To successfully fish such water requires two types of artificial bait. Either a choppy action plug of the floater type with a quarter to half or full ounce sinker about 18 inches ahead or the standard underwater plug with choppy action, but this must be doctored up if no weight is used ahead of it.

Regardless of the size of the underwater plug, midget, standard or oversized, I always doctor these plugs. To assure against fouling on the bottom, the down pointing hook of the trebles is cut off. A hole, buckshot size, is drilled in the bottom of the plug behind the belly hook. In the smaller plugs it is advisable to drill the hole in front of the belly hook. Into this hole you force a buckshot and give it a daub of red paint.

(Turn to page 30)





A backrunning plug, frilly pants plus pinking shears equals one surprising bass fraud!

Frilly Britches for bass

"FARFETCHED?" you say, "That a little girl's panties were ever used to deceive big bass!" Well, truth is stranger than fiction any day.

It all started some years ago when Jim Ledbetter, a renowned angler from Memphis, Tenn., was referred to me by a local sporting goods store. He wanted to spend a day with me on a bass lake. I had read, as perhaps you have, about Jim's phenomenal catches, in Horseshoe Lake (Ark.).

I decided on a \$500-acre lake that for the past three years had been considered a fished-out lake, but where I well knew there was still a respectable number of adult bass. The trip was arranged. As Jim left he suggested I accompany him to a meat market across the street.

Jim asked the man in white apron if he had a piece of white sowbelly. Minutes later I watched him fashion, with his special knife, four 8 inch-strips of belly rind fresh from the hog with a thin coating of fat left on. Jim's pork rind was different.

On his first cast the next morning, I noticed immediately that the action was more in the rind than in the bait. Instead of rind attached to bait, I'd say, the bait was attached to rind. On

his third cast a 4-pound bigmouth rushed up and loaded on viciously. Thirty minutes later four sizeable bass were on the stringer. As we were retiring from the lake some two hours later with nice bass, a boat pushed alongside. The occupant had learned Jim Ledbetter was on the lake. He may have "been from Missouri" but there was the evidence. "That's the best string of bass caught here this year," he remarked.

You are perhaps wondering how a little girl's panties got mixed up in all this. I assure you they did in a most exciting way. Some weeks later, while I was absorbed in the evening paper, my wife went across the street to baby-sit for a friend. When I called for her after dark, she asked me to wait until she put the little girl to bed in the next room. Suddenly my eyes became glued to a rubber garment on the floor. Yes, it was the panties. Why I associated those snowwhite panties with the long strips of pork rind used by Jim Ledbetter I'll never know. It struck suddenly—why fool with greasy sowbelly when rubber britches are dry and so much nicer to handle? Then I spied a pair of pinking shears in a sewing basket on a table. Everything seemed convenient to my purpose as I visualized an 8-inch strip of panties shaped to a sawtooth edge to resemble a juicy, tender crustacean traveling along with the bait.

My dream was interrupted with a cry. There stood Vi with a horrified expression, "You've ruined the baby's pants—have you gone crazy?"

"Well, yes and no. Listen, honey, you wouldn't understand but the kid's pants are going to serve a purpose far

more important than any ever intended by the manufacturer. Besides, they only cost a quarter. Relax, and I'll make restitution."

The following Saturday a companion and I were fishing Lake James, one of our oldest mountain lakes. By noon he had managed two bigmouth. I had nothing. After lunch, while my friend rested, I remembered the trailer. A drop of cement made it firm to the rear of a backrunning plug.

An enticing backwater recess of around 3 acres a bit up-shore was ideal for the experiment. Shadows and reflections of tall pines blended across a glassy surface where lay two underwater logs and several protruding stumps—something *had* to be up there. It was the first cast. I was watching the action of the trailer. Suddenly from nowhere three bass appeared. One rushed up for the kill and loaded on. I had been dubious of the long trailer resulting in a short strike, but he had the hooks solid. On the second retrieve four bass rushed for the fraud, two from the sunken trunk, one from his stump position and the other from out there somewhere. While playing the second bass, one of the more fortunate (to this point) tailed along still looking for an opportunity to snatch the trailer. With the second bass safely on the bank, I paused for a third cast. To my amazement, the bass that had followed (I'm sure of it) was now idling out about 20 feet from the bank with his tail fanning slightly and a vicious expression in his eyes (if fish have an expression which, I think, on occasion they do) as if daring me to throw it again. My cast

(Turn to page 27)

By JIM GASQUE

Author of Bass Fishing (Alfred A. Knopf, New York)

"I'VE ONLY got one week to get in my fishing," said Joe, "and I'm going to make the most of it."

The first day he sat out in a row-boat half naked, in hairy-chested contempt of the elements. But he had more hair on his chest than on his bare head and more muscle than good sense. Unfortunately for him, the sun has no respect for brute strength.

After a few hours, the merciless sun cooked the starch out of our muscular friend. By late afternoon he had wilted to a limp, bleary-eyed, pitiful hunk of manhood. By nightfall we could feel the heat several inches away from his tomato colored head. He was repentant, but too late. His fishing trip was over before it had got fairly started.

Joe is not unique. Most of us over-estimate our ability to soak up sunshine. Statistics bear out this fact, showing that 7½ million workdays are lost yearly because of crippling sunburn. Someone has estimated that each summer produces 6,000 acres of sunburned skin. That's enough to pave a highway one hundred feet wide from Pittsburgh to Boston.

No one deliberately sets out to get sunburned. Unfortunately, most of us must take our fishing when we can. Too often it means that a year round indoors man temporarily becomes an outdoorsman. Here is where a little common sense is needed, for sunburn is an insidious thing. You may feel good and be burning to a crisp at the same time.

Most of us cannot accurately judge the intensity of sunlight. A cool, clear, bright day, for instance, fools many of us into sunbathing too long. Yet it is not the heat of the day but rather the intensity of the sunlight that is all important. A hazy, overcast sky can also be deceptive. Surprisingly enough, a large percentage of the harmful rays do get through. We do not suspect their presence because they are invisible to the human eye. Therefore we burn and wonder why.

Most of us have enough sense to come in out of the rain, but very few have the good judgment to get out from the blistering sun in time. This because effect tardily follows cause by about twelve hours. Therefore if you should see a tingle of red creeping into your skin while you are still out in the sunshine, you have stayed out too long—you're already burned. The next day you'll be a statistic.

DON'T GET BURNED

By John W. Korda

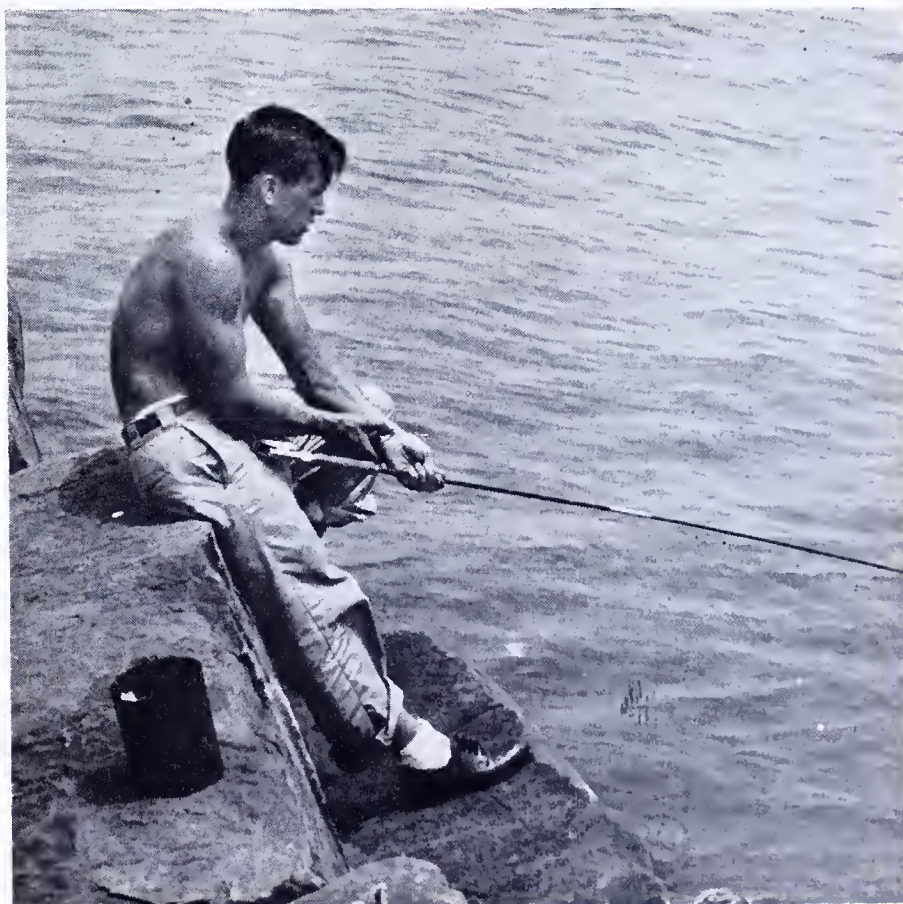
To some of us the sun can be as dangerous as disease germs or bullets, while others just naturally can take sunshine in large doses. Your own skin can be used as an exposure meter. The lighter its color, the shorter the allowable exposure time. It is generally true that blondes and red heads burn more readily than brunettes. Use this as a guide. If your skin is very fair or freckles readily, get your coat of tan on the installment plan. Half an hour a day is enough at first. Plan your personal well-being at least as carefully as you check over your tackle and equipment.

Even if you have no opportunity to acquire a protective coat of tan, the prevention of sunburn misery is still quite simple—just keep covered.

If the day is hot, wear loose clothing of loosely woven fabrics. If your skin is white as chalk, don't take your shirt off for any length of time. You may not be able to put it back on again for several days. If your hair is thin on top, keep it well covered, or you may risk more serious trouble than sunburn.

Remember, you are doubly susceptible to sunburn if you are out in an open boat. Even if you are fairly well tanned, the reflected rays bouncing off the water can cause you misery. This is true of all lightly tanned areas,

(Turn to page 31)



Here's an angler, unprotected from the rays of the summer sun, who will hours later be a suffering, miserable character.

THE OLD EXCUSE

Just how valid is your excuse for not catching fish when you blame it on the fishes shedding their teeth?

ARE you one of those poor unfortunate anglers who never seems to be able to go for northern pike, pickerel, or muskellunge unless they are in the process of shedding their teeth? Don't feel too badly about this situation. Many an angler has traveled to distant lakes over a period of years and found that he has very disgustingly arrived at the time of year when members of the Pike family are losing their dentures. The confusing thing about all this is that regardless of the time of arrival, whether it is in June, July, August or September, it always seems to be the period of sore mouth in the *Esocidae* (Pike family). Have you noticed that you are usually told that the pike are shedding their teeth *after* you have failed to catch fish?

Your guide, boat livery man, or local angler is correct. How can he miss? The pike shed their teeth the year around! Of course, you must remember that if the fish "went off" their feed every time they lost a tooth or two, they certainly would be on a very limited diet.

What actually occurs in the mouth of pike? Fishery biologists have been concerned with this problem in most northern states. The Pennsylvania Fish Commission's Fish Management Unit has made observations during the past three summers which bear out the publication of Trautman and Hubbs in the *Michigan Conservationist*, August, 1948. The results of the findings of these two men are:

1. The number of canines (long, sharp, pointed teeth in lower jaw) is constant throughout life, averaging about sixteen per jaw.
2. These teeth are confined in sections of the gum.
3. The canines are much subject to loss and replacement by accessory teeth being developed in each section of the gum.
4. An effective number of teeth remain in service at all seasons.
5. There is no evident seasonal change of consequence in the number of teeth in service or being replaced.



Pennsylvania Fish Commission to Manage Penn Lake

Another step forward in the Commission's Fish Management Program was marked recently with the signing of a lease which gives the Commission the management of Penn Lake in Luzerne County for a 20-year period. This 35-acre lake, which was drained last fall and is now devoid of fish, is being studied to determine what fish species are best adapted here. Stocking of desirable fish will be followed by checks on anglers' catches and general management studies in an effort to produce the best possible fishing for the public in Penn Lake. It is believed that a critical study of conditions in this lake will be of value in the management of other similar lakes.

Present at the signing and shown above (left to right) were trustees of the Penn Lake Association: C. Adey, Don Williams, Ernest Steinhauer, and William Davis, president; and, representing the Pennsylvania Fish Commission: Gordon L. Trembley, chief aquatic biologist; Clarence Shearer, district supervisor, Northeast Division, and Cyril Regan, chief, Division Land and Water Acquisition.

They also noted in their publication that immediately after the fish are removed from water, the gums showed no swelling, reddening, or other pathological symptoms. Soon afterwards, however, the gums reddened because of the rupturing of blood vessels caused by mechanical injuries during the death struggle of the fish or the results of lure. The gums redden chiefly where a canine tooth is being replaced, because the soft flesh is there unprotected by a fixed, external tooth and is well supplied with blood vessels which nourish the growing tooth.

This brings up an important question. Why do fish go off their feed in summer? In the latter months of sum-

mer, the small fishes reproduced in the spring make excellent and abundant food in these months. Perhaps, we should say that it is in August and September that they are "bite-size" from a larger fish's viewpoint. Other reasons may be that many fish retire to the safer confines of deeper and cooler waters, or perhaps as in the case of the bass more feeding may be carried on after dark.

This all adds up to one solution. The next time a "native" thinks you are naive and tells you the fish didn't bite because they were shedding their teeth, tell him the facts as you saw them in the ANGLER.

—KEEN BUSS, *Fisheries Biologist.*

NEW IDEAS MAY BE OLD

IZAAK WALTON might have lived in the seventeenth century but some of his observations would fit the modern concepts of fishery biologists.

Today, many states are studying the relationship of soil fertility to fish production and comparing the results to the production of farms based on the fertility of the soil.

Is this something new? Hardly, for Izaak Walton wrote in the "Compleat Angler," published in 1653, the following:

"There is also in Northumberland a Trout called a Bull-Trout, of a much greater length and bigness than any in these southern parts: and there are in many rivers that relate to the sea Salmon-Trouts, as much different from others, both in shape and in their spots, as we see sheep in some countries differ one from another in their shape and bigness, and in the fineness of their wool: and certainly, as some pastures breed larger sheep, so do some rivers, by reason of the ground over which they run, breed larger trout."



TROUT AND PEEPERS

Among all of Nature's spring voices probably none is better known than the spring peeper (*Hyla crucifer*) whose concerts are heard nightly in marshes and along the edges of streams. Fishermen welcome this voice as a harbinger of spring and fishing, but probably few realize the role this little frog may play as a seasonal food of trout.

Fishing in Farnsworth Branch, Warren County, where the Fish Commission is conducting a creel census, Gordon Trembley, the Commission's Chief Aquatic Biologist, landed a 17 inch brown trout which was definitely on the plump side. The photo above shows the stomach contents which included 25 spring peepers, one stone-fly nymph and parts of one crayfish. On top of all this the trout took one more morsel—a worm with a hook in it.

Psychology Students Studying Fish at Penn State

Robert E. Stover and Paul M. Hurst, Jr., graduate students in the Department of Psychology, the Pennsylvania State College, are undertaking experimental studies of fishes at the College in cooperation with the Fisheries Research Laboratory at Bellefonte.

The studies in progress are attempts to determine the limits of hearing in fish and their ability to discriminate color. In the present studies, bluegill sunfish (*Lepomis macrochirus*) are being used with plans for work with other species at a later date.

Huntsdale Hatchery Veteran Passes On

Francis McManus, 80, employee of the Huntsdale Hatchery, Pennsylvania Fish Commission, passed away April 13 following a brief illness. THE ANGLER and his many associates regret the passing of this fine gentleman.



Frederick K. Reidel

HATCHERY SUPERINTENDENT RETIRES

One of Pennsylvania's pioneer fish culturists, Mr. Frederick K. Reidel, retired on May 1, 1952, after 44 years of service with the Pennsylvania Fish Commission. Mr. Reidel, who began work with the Commission at the Pleasant Mount Hatchery in Wayne County in 1907 at the age of 20, has had many years of experience in the propagation of both trout and warm-water fish species. In 1922 he was made superintendent of the State Hatchery at Union City, Erie County, and in 1935 was recalled to the Pleasant Mount Hatchery as superintendent. In 1939 Mr. Reidel was transferred to Linesville in Crawford County to take charge of the hatchery that was under construction there. From that time until his recent retirement he has served as superintendent of the Linesville Hatchery.

Mr. Reidel was born and raised near Pleasant Mount. His mother, who is now 95 years old, still resides at the old homestead along the West Branch of the Lackawaxen River.

For the present Mr. and Mrs. Reidel and son will continue to live at Linesville.

FISHERMAN'S PARADISE

CLOSES

JULY 19TH — 8 P.M. (EST)

PLAN A TRIP NOW BEFORE SEASON ENDS!

EARLY SCHUYLKILL FISHERIES

(Continued from page 5)

it on the side of the victors. The story of their opponents was detailed at the time as follows:

"William Richards, Constable of the Townships of Amity, in the County of Philadelphia, makes oath, That on the twentieth day of this Instant April, he received a Warrant from George Boon, Esq., one of his Majesties Justices of the Peace of the said County requiring him, this Deponent, to take to his Assistance such persons as this Deponent should think proper, & go down the River Schuylkill & remove all such obstructions as should be found in the said River, in obedience to which Warrant this Deponent took several persons, Inhabitants of the s'd County as his assistants, & together with one Robert Smith, Constable of the Township of Only, who had received a warrant to the same purpose, went down the said River in three Canoes to Mingoe Creek where they found a Large Number of Racks & obstructions in the said River, & saw four men upon an Island near the said Racks, that this Deponent & Company removed the s'd Racks without receiving any opposition, from thence they proceeded down the River to the Mouth of Pickering's Creek, near which they found several Racks, which Reached Across the s'd River to an Island, which Racks this Deponent & Company also removed, that immediately after the s'd Racks were removed, about the Number of two hundred Men came down on both sides of the s'd River & were very Rude and Abusive & threatened this Deponent & his Company, that the s'd Deponent expecting from the ill Language and threats given that some mischief or a quarrel would Ensurue, he took his Staff in his hand & his Warrant & Commanded the s'd Men in the Kings Name to Keep the Peace & told them that he came there in a peaceable Manner & according to Law to Move the Racks & Obstructions in the River, upon which some of the s'd Men Damn'd the Laws & the Lawmakers & Curs'd this Deponent & his Assistants, That one James Starr Knockt this Deponent down in the River with a large Clubb or Stake after which several of the said Men Attacktd this Deponent & Company with large Clubbs & Knockt down the s'd Robert Smith, the Constable as also of several of this Deponent's Assistants that one John Wainwright, in company with this De-

ponent was Struck down with a Pole or Staff & lay as Dead with his Body on the Shoar & his feet in the River, That this Deponent & Company finding that they were not able to make Resistance, were Obliged to make their best of their Way in order to save their Lives, after which this Deponent together with the Constable of Only & some of their Company, proceeded down the River, in order to go to Philadelphia, to make Complaint of the ill Usage they had received, that as they came near Parkyooman Creek they found another Set of Racks, which were guarded by a great Number of Men, that this Deponent & Company, Requested the s'd Men to let them go down the River, & if they would Suffer them to pass that they would not Meddle with their Racks, upon which he s'd Men abus'd & Cursed this Deponent in a very Gross Manner, telling the s'd Deponent & his Company that they should not pass by them, That one of the s'd Men called out aloud & offered five Pounds for Timothy Miller's head, the s'd Timothy being one of the Deponent's assistants & another of the s'd men called out to the s'd Timothy to make haste away, And afterward the s'd Men pursued Deponent & Company, who for fear of Murthered made the best of their way with their Canoes to the Mouth of Parkyooman Creek & there went ashore & left their Canoes there with several Cloaths,

which Canoes are since Split in Pieces (as Reported) & several of the Cloaths turn'd adrift on the s'd River.

"The X mark of William Richards, sworn on the 27th day of April, 1738, Before me Ras Assheton."

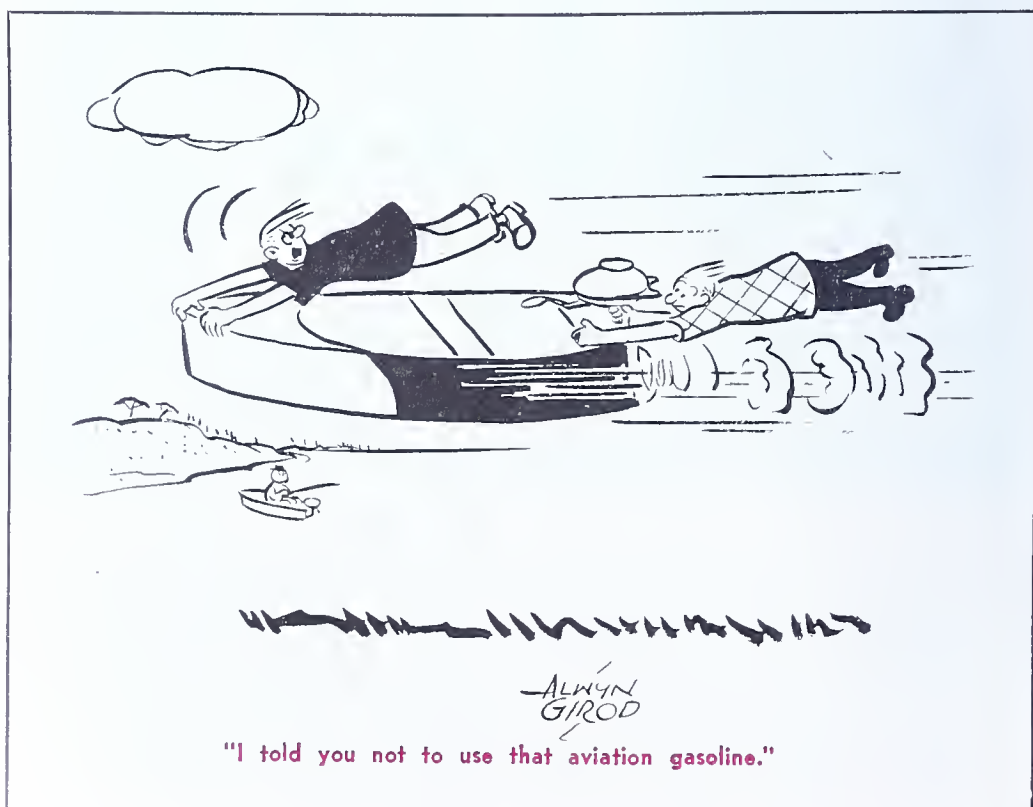
* * * * This difficulty was the cause of considerable agitation in the colony and resulted in the termination of rack fishing.

"* * * * After the racks had been removed from the Schuylkill, fishing instead of being an occasional pursuit for the whole neighborhood, became a regular avocation, and was conducted by a few skilled persons, who gave their time and attention to it. Pools were cleared away in the River and the fish were hauled into the shore by means of seines.

"The Islands, since they contained the best landing places, grew to be very valuable. Four hundred shad were caught at Long Ford in a haul, which is the largest upon record. Twenty-three hundred were caught in one night at the Island opposite Phoenixville."

In 1820 "there were fisheries at Longaker's Pool, where the railroad now crosses the Schuylkill at the mouth of the tunnel, at Buckwalter's Pool, near Buckwalter's Island; at the mouth of the French Creek, at Long Ford, Green Hill, Perkiomen and Valley Forge. At Buckwalter's in 1812, one hundred shad were caught in a seine at one time.

"When Samuel Lane owned the Bull Tavern, he had an arrangement with



the fishermen at the mouth of the Pickering, that he was to furnish them each morning with a quart of whiskey, and they were to give him in return a shad weight eight pounds. The contract was continued for some years with mutual satisfaction. After a time, however, shad deteriorated so much in quality that those of that weight became extremely rare. Finally, one morning the fishermen saw 'Old Sammy' coming along as usual with his quart jug, and, on looking over their captures, no fish of the requisite proportions could be found. In this unfortunate emergency a happy thought occurred to one of them, and, seizing the largest of the fish, he held its mouth open while a comrade filled in pebbles enough to give it the proper weight. The old man carried it off to his home, saying it was a heavy fellow, but the whiskey contract was afterward abandoned."

One of the most valuable of the shad fisheries on the Schuylkill, near Philadelphia, was at Manayunk. Before the beginning of the present century there had been made in the river, from time to time, a succession of rude dams from one to three feet high. These dams extended only a portion of the way across the river and were intended merely to force the water into a particular channel. Between the island at Manayunk and the western shore was one of these dams, forcing the

water into a narrow channel on the eastern side. The fishermen at this fishery used to station their boats with their seine at the head of the island and a man at the lower end to watch the shoals of shad coming up, and when he saw them he would give the signal to the party in the boat, who immediately ran out with the seine, going downward.

Some of the old residents along the Schuylkill river near Philadelphia, relate marvelous tales of the catches of fish to be made in their boyhood days, and some of them almost surpass belief. One of these who spoke in a more moderate strain was Godfrey Schrou, a one-time resident of the Falls of Schuylkill. He related to a friend about seventy years ago, that in his younger days he could often catch with his dip-net 3,000 catfish in one night; the perch and rockfish were numerous and large. Often he has caught 30 to 80 pounds of a morning with the hook and line. Other persons who were neighbors of Mr. Schrou asserted that there was nothing extraordinary in a catch of 3,000 catfish in one night in a dip-net. Up to the year 1817, they say, more than that number were taken repeatedly in the same period of time. It has been claimed that so plentiful were this species of fish, that one scoop of the dip-net has brought up more catfish than could be lifted into the boat by one man. There were said to

have been people at the Falls in those days, who, in the fishing season which lasted some three months, made enough by catching shad in a simple scoop or dip-net to support their families in fish for a whole year. In their work they anchored or fastened to the rocks in the rapids, the small boats from which they fished; some of the particular stations were more valuable than others, and there was much rivalry in the early spring who should first get possession of the favored spots, which the boat never left during the whole season; if it did, by a rule among themselves, any one else was at liberty to take possession.

The catfish were the kind known as the white catfish, a migrating species that came from the sea annually in immense numbers, so numerous in some instances as to blacken the narrow passages of the river. They came regularly on or about May 25, the run lasting some two or three weeks. They were caught in immense numbers during the season, put in artificial ponds made for the purposes, and taken out as wanted during the summer and fall months. They were delicious eating and the people thereabouts learned the art of cooking them so well that thousands of people were attracted thither, and the fame of the Schuylkill's catfish, waffles and coffee became of more than local fame.

FRILLY BRITCHES FOR BASS *(Continued from page 22)*

was about 20 feet beyond this bass, and before he could turn to get it a third bass was hooked. It was with much satisfaction that I walked from this spot with five splendid bass, all coming via the frilly britches route!

In the Spring of 1951 I neatly shaped a half dozen trailers with pinking shears and sent them to W. T. Hunt, Hayesville, N. C., an angler with whom I had fished in previous years. Soon afterward, the sports page of our local newspaper reported Hunt and his friends as taking unusually large catches of bass from Lake Chatuge. The reports continued throughout the Summer and Fall and anglers in the region envied those phenomenal catches of large and smallmouth bass. It was gratifying indeed when Mr. Hunt wrote me that his favorite bait was more wicked than ever since the

scalloped trailer had been attached, and, more important, was responsible for much of his success. He and his friends agreed that the bass didn't strike short. It was announced recently that Mr. Hunt's 12 lb. 9 oz. largemouth won first place in the 1951 Field and Stream Contest, Southern Division. Since it is now a matter of record I'll name the bait. It was a 422 Whopper-Stopper with trailer attached. Incidentally, this same fraud is presently the writer's choice for large bass. It is also a proven killer for wall-eye pike and other game fish. One must see the 8-inch trailer behind just the right bait to appreciate its wicked wiggle. All, thanks to a little girl's panties!

(Note. Now I'm using dental rubber which has more body and stays put longer.)



THE KINGFISHER



is apparently aimless with kittenish bellyflops or water-skimming.

To escape flying pursuers such as certain hawks or angry kingfishers whose territory has been invaded, a kingfisher has been known to plunge into water and go partially or completely under sometimes to a depth of one or two yards. Its waterproof plumage keeps it dry even after submergence. It can swim if necessary.

Fishermen are sometimes misled as to the abundance of these birds because they are so noisy and seem to be everywhere at once. Actually, its numbers probably vary with the food supply, productive streams having more birds than polluted and non-productive streams which feed neither fish nor bird.

Be it sea coast or freshwater, the kingfisher is well-distributed near water. Of course muddy or rough waters hinder vision, hence feeding, so we may expect to find it commonly along clear, wide, slow-moving streams in open situations although it may move up swift narrow, woodland streams if the food is particularly choice. Indeed, it has been observed roosting at night in trees rather than in holes although it is often active by night as well as day.

Nesting begins in Pennsylvania in May. Young have been found here as early as May 17th. Six to seven glossy white eggs are the usual number. The nest is placed in a burrow about four inches in diameter and ranging in length from three to twelve feet. The birds dig with their bills and may finish a burrow in three days or in three weeks. Burrows are most often located in banks near streams or if banks are lacking may be dug in railroad embankments or road cuts often in the company of bank swallows

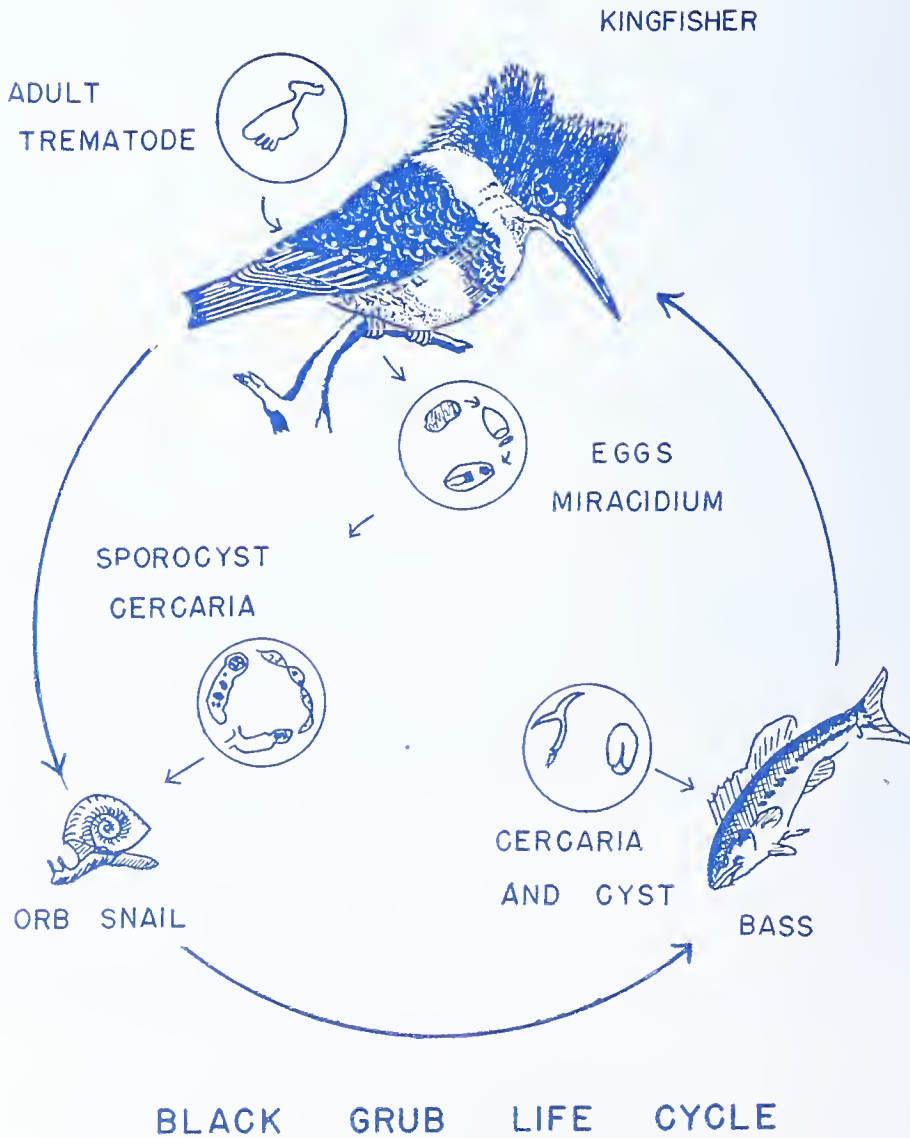
(Continued from page 13)

which may even share the same entrance. Starlings have also been observed to use kingfisher holes. The burrow has even been found in such odd sites as iron "tailings" or even in plowed fields often as far as a mile away from the feeding grounds. Although both birds may dig, some observers feel that the male does the lion's share of the work because the bills of male birds often are jagged and scratched showing wear. Both birds may sit on the eggs. Footprints are telltale evidence of the birds' coming and going. Often a furrow is worn by the patter of their feet on the preferred entrance side of their hole. Extra burrows may be dug just as the marsh wren builds extra nests. Do these "extra" homes serve any purpose such as misleading predators or are they simply a result of excess nest-building instincts?

The blind, red, naked young hatch on a bed of grass, sticks, fishbones, or

simply on the remains of regurgitated food pellets after an incubation period of about seventeen days. Observers have seen the young fed on the average every twenty-five minutes. Very young, birds are probably fed on regurgitated food, but how can the parents see where to place the food in the darkness of the burrow? It's really a mystery. Do they "feel their way" to the young birds' mouths? Perhaps some reader knows the answer. Does anyone know whether the female leaves the nest during the incubation period? Does she alone incubate? And if so, does the male feed her?

After thirteen days the temperature of the young birds may increase 4-5° Fahrenheit. As they grow larger the young all scramble to the hole entrance to be "first" on food. Later they cling and huddle together in a ball and can actually be rolled as a mass, so tightly do they cling to each other with wings extended. They begin to eat bigger pieces of food which may be left outside the burrow. When the young finally fly from their nest



(which rarely is a hollow tree) they are fed near the hunting grounds. The parents may drop a dead fish into the water, thus tempting the young to try fishing. Soon the young birds will be catching live food by themselves. The undigestible portion of such food (bones, scales) is spit up as pellets after the soft parts are digested. Kingfishers will take many kinds of food, sometimes even when it is on a hook as one fisherman found out! Here are a few items: mice, frogs, tadpoles, salamanders, small snakes, turtles, lizards, crayfish, grasshoppers, crickets, various aquatic insects (some of which eat fish), mussels, fruits (such as wild cherries), newly-hatched English sparrows and fish. When fish are eaten the kingfisher often picks up roundworms and parasites which may prove fatal. The black grub of bass and sunfish completes part of its life cycle in the intestine of this bird (see illustration).

Kingfishers fished the nation's streams long before the white man did. It is surprising, therefore, to find antagonism for this bird among certain fishermen. To be sure, kingfishers can become serious predators of unprotected hatchery fry in artificial concentrations when natural cover is lacking, a situation seldom found outside of hatcheries, but it is only a hasty thinker who supposes their diet to be solely or even largely trout in a natural state. Kingfishers catch the more abundant, slower chubs, dace and minnows which frequent slower,

more open waters, rather than the speedy trout that lurk under banks in more inaccessible places. The kingfisher probably helps scatter bands of fish and forces them to be more evenly distributed in a stream. Certainly this bird must have some important relationships to fish. Probably it thins the populations, as a forester thins his trees, surely a desirable deed when it is known that much poor fishing today is due to stunting, crowding and underfishing rather than the older idea of over-fishing. A given body of water can support so many pounds of fish. It is up to the fisherman to decide whether he wants millions of little fish or thousands of legal-sized ones. It is estimated more fish have been killed by pollution in Pennsylvania in the last fifty years than all the fish taken by kingfishers, herons, ospreys and otters since William Penn settled the state. In the few instances where kingfishers are undesirable, they may be kept from hatchery fry by proper screening. It should be remembered that much of the hatchery raids on fish are made by migrating birds that will soon leave the area.

Not without enemies, this bird may fall prey to winged predators. Snakes crawl into the burrows and destroy eggs and young. Conceivably, snapping turtles may capture an occasional bird. Skunks can dig out burrows. Sometimes, however, it is the bird's own greed which causes its downfall. One kingfisher, while sampling oyster

on the half shell, was trapped when the oyster closed its shell on the bird's bill and held it to be drowned by the oncoming tide. Freshwater mussels, too, may clamp down unexpectedly on the bird's bill as it probes for food. In hasty moments a spiney fish when swallowed the wrong way may catch in this bird's throat. Many a kingfisher has been seen with part of its meal dangling outside its bill while the inside portion is being digested.

But, of course, man is the biggest enemy of the kingfisher and many are slaughtered annually. When people begrudge the kingfisher an occasional trout fry, they'd better stop to look for a better reason for their poor fishing. This bird feeds largely on fish of little or no importance to the fisherman. And you will find a number of fishermen who welcome the color and rattle of this solitary, independent fisherman who, like themselves, enjoys getting away from the hustle and bustle of civilization to find a little solitude and "fishin." Perhaps when the fish aren't biting so well some of these anglers will turn their attention to this interesting bird and fill the gaps on our knowledge of this feathered individualist.

A warden looks at the kingfisher winging across a Pennsylvania sunset and as he thinks of turning in soon, a bushman will be stirring soon in Australia when the laughing jackass wakes him up. There will always be a kingfisher—someplace, fishing.

QUARRY BASS

(Continued from page 20)

mally are, they have a wide field of vision. The nature of the average quarry hole bank makes the angler fish from a position well above the water surface, with no cover to conceal him, any more than the fish have concealing cover. Each step, each movement of the arms and rod, are instantly detected. This seldom scares the bass into actual flight, but it does put them on the alert.

Fly lines, bait-casting lines and even the heavier leaders must look like ropes to these callous bass, which have seen many such things dragged through the water, and they probably can count each hook on a plug as it goes by, or note with interest the kind of knot the bait fisherman uses to tie on the hook which holds the live minnow.

As for the live minnow, it is ignored by the bass because they can see all too clearly that there's something wrong with it.

So, there you are, forced to stand out in the open above the fish, plainly visible, as is your terminal tackle, trying to tempt fish that apparently don't eat. It would be a miracle if many quarry bass ever were caught under such conditions.

There's only one answer, of course—fish between sundown and sunup, or on cloudy and rainy days. Darkness eliminates most of the factors that work against the daytime angler. He and his line become well nigh invisible. Furthermore, since quarry bass loaf all day in sluggish contentment, it follows that they must feed at night.

It also follows that the ones seen must be survivors of cannibalism, or, at least, they thrive on heavy eating of other species in the pond since they are so well fed and the average quarry does not contain the variety of food found in natural lakes. I have no stomach analyses to support the belief, but feel that other fish must provide the bulk of quarry bass meals, plus a few frogs, mice, baby birds or land insects that enter or fall into the water. Normally favorite bass foods, such as crawfish and the nymphs of dragonflies, often are not present.

Since bass are consistent surface feeders during the warm summer nights, the great depth of most quarry pools is not an important factor. There are exceptions, naturally, when the fish are down; but a bit of fishing will tell when this condition exists.

The time to start fishing a quarry is an hour before nightfall. In the first place, the chances of catching some bass are excellent toward evening because that is when feeding activity starts. Besides, it gives the angler an opportunity to "case the joint" before darkness arrives. He will be able to note how far he should cast, how the shoreline runs, and where the most activity seems to be taking place at the moment night shuts out the view.

If fishing bait, try to use a minnow or food fish which is common to your particular Old Quarry Hole. Fix the float so the bait will be held close to the surface (at least, until you find out they may be feeding at a deeper level), cast out and pray. I do not think, however, that bait fishing is ever very profitable in a quarry hole at night for the plain reason that you can't cover enough territory—and you must cover a lot of the water to find bass that are seldom, if ever, at a fixed spot in such an indefinite pool as a quarry hole. It's somewhat like trying to decide where the fish might be located if they were stocked in a concrete swimming pool. The only way to find out is to keep casting to different places, and this is a complication when using live bait.

Although the bass feed heavily on other fish, one of the best plugs for fishing at night with a bait-casting rod in quarry holes does not resemble a minnow at all. Instead, it is supposed to look like a mouse. This is the Shakespeare Swimming Mouse in the black finish—black so it can be seen from underneath silhouetted against the vague lightness of the night sky.

I have a number of friends who have used this lure with remarkable success over many years in night fishing, not only in quarry holes, but on lakes as well.

However, it must be worked just right, and that means slowly. After the cast is made, the retrieve must be so slow that the Mouse barely moves through the water, with an occasional pause without motion at all. This is a surface lure, of course, and its smoothly-rounded shape makes it come across the water with scarcely any disturbance except for a faint V-shaped rippling wake.

Its success when worked slowly is a tipoff on how to work other surface plugs at night. There are other perfectly good lures—the Jitterbug, the Crazy Crawler, Plunker, various Wounded Minnows and such—but the angler should take his time on the retrieve and work out the cast thoroughly instead of racing them over the water as many do. True, there are times when the exception works, and it pays to bring them in with a fast retrieve; but the slow retrieve should be tried first because it most often pays off. A Plunker, or any popping lure, and the Wounded Minnows have to be given an occasional sharp twitch on the way in.

I have never had much luck with underwater lures in such night fishing, and, if it is necessary to go down deep for the bass, I feel that pork chunks or pork rind lures, if allowed to sink away down and then are retrieved slowly with a jigging motion, are the best bet. There is something about this wind-stop-wind-stop method

of jigging that is attractive to bass.

Many quarries lend themselves admirably to fly rod casting even at night because of the high banks and the absence of brush near the water's edge. This gives the angler an opportunity to use big bass bugs, deerhair frogs and mice, and small popping lures; but a certain skill is required to hook the fish. The angler must set the hook at the sound of a splash in the vicinity where he knows his lure to be. If he waits to feel the strike he will be too late. Speaking of fly rods, I know an angler who makes a specialty of daytime fishing in quarries—or, rather, early morning and late afternoon fishing. He uses a very fine leader, often 4X or even 6X, about nine feet long, and employs a reddish-brown squirrel hair streamer tied on a No. 10 hook. He also has an inflatable rubber boat with which he can cover the entire quarry hole.

Now, then, for a final word on this subject. At the outset I said there was a way to catch these impudent quarry bass, but that I didn't especially like the method. I don't. Night fishing annoys me, although I know very well that after dark is the best time to catch the big fish and the hard-to-take fish, in quarries or any place. But fishing is a visual pleasure for me, and I like to see what is happening. It's all very well to cast a plug into blackness, hear it land, feel and hear the strike, hear the splashing of the hooked fish—but I like to watch these things. So, if catching quarry bass depends upon night fishing, they can remain there until they die a natural death as far as I'm concerned.

GO DOWN, BROTHER

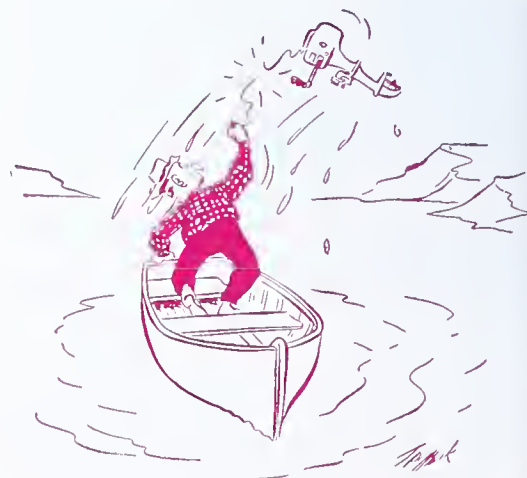
(Continued from page 21)

With the weighted combination or doctored plug the average fisherman can take his share of river walleyes and a walleyed pike caught in fast water on artificial bait is going to cause many a confirmed bass fisherman to move ol' bronzeback to second place on his esteemed list. However, the plug caster will find plenty of blank days. Sometimes the walleyes will hit during early morning and up to forenoon on bright, sunny days. Then again it may be only during the midnight hours, again only at dusk and during late afternoon. Regardless of the time of

day if you are after river walleyes fish SLOW and LOW!! Don't become too impatient and be ready for a lunging strike at any moment. Your pike may keep you in suspense but when the strike comes, "hold your hat."

In addition to plugs, another excellent river artificial is the weighted spinner-fly combination. I have a personal preference for a large marabou streamer on a 2/0 long shank hook in white, yellow or black. In addition to fishing this combination in the conventional downstream or across stream cast there is a variation or technique

used by very few fishermen that will, on occasion, turn blank days into highly successful trips. If you have a



motor so much the better. Start drifting downstream and casting back upstream. Don't become discouraged. You may cover a stretch from the head of the riffles down through the middle reaches and on to the tail of the hole without a single strike or bump from a walleye. Go back up to the riffle and repeat your drift. Maybe you'll hit them on the first try, maybe on the fourth or fifth and maybe not at all. If you can't pick them up drifting and casting in the conventional manner remember this upstream cast or reverse method. Last fall it turned two of my five trips from fishless efforts into pleasurable events.

In walleyed pike fishing, the finish of the plugs is not half as important as many might be led to believe. It's faith in the plug that counts and the action of the plug. I've tried various sized plugs in yellow, red and white, blue scale or black but continued experiments have proved to my satisfaction that any number of color combinations in a choppy action will produce if you're down near the bottom in walleye water. A surface plug may on occasion account for a pike or two but consistent success lies with the choppy, deep running plugs.

Some localities have a plug with a particular finish that will outscore the favorites of most fishermen. A good example of this is Lake Pymatuning or Pymatuning Reservoir, as it is sometimes called, in northwestern Pennsylvania. A slowly trolled plug of medium size in an orange shading will outscore most of the standard or accepted finishes. This is a matter for conjecture but a number of fishermen have advanced the theory that it approximates the shading of the huge numbers of small carp that furnish food for these giant walleyes. Ten-pound walleyed pike from this lake are not uncommon and in a few years they will be commonplace.

Lake fishing for walleyes is often as uncertain as river fishing but again you must go deep. The accepted lake method is trolling. Many fishermen lean toward the June bug spinner and minnow or worm combination. It is



true this combination and method is highly successful but a slowly trolled plug will bring the same results. There is just one drawback to lake trolling with plugs and that is the number of times you will become fouled or hooked up and lose your plug. This is especially true of artificial lakes and those that have not been thoroughly brushed-off. A good example of this is the aforementioned Pymatuning Reservoir.

In lake fishing, as in river fishing, if you catch one pike try for number two in the same spot. These gregarious fish travel in schools and your chances of connecting again and again are very good if you can keep at the same depth and in front of the school as they move along in their feeding.

A word of caution in lake fishing. If you are trolling, don't become impatient and speed up your motor or rowing because they don't seem to be feeding. Try varying the level or depth at which you are fishing but keep it slow. Some fishermen can't sit still and bait fish, others can't stand the slow movement that goes with trolling unless the fish are hitting. These fellows might as well give up on walleyed pike fishing or better yet confine themselves to wading or floating the rivers and streams.

Remember . . . adapt your fishing, whether lake or stream, to the walleyes' habits. In short, go down to the walleyed pike, don't make them come to you!

Don't Get Burned *(Continued from page 23)*

particularly under the chin and around the eyes.

Even the eyes themselves take a beating. I remember vividly one

morning when I fished with live bait and a bobber a few years ago. The dancing waves sent stabbing shafts of sunlight into my eyeballs with every

ripple. After an hour my eyes felt like someone had belted me across the head with a two-by-four. And that ended the fishing for the rest of that day.

Glare is the greatest enemy to the eyes. Those of us who do not spend

most of our time outdoors need protection from glare. This means you should wear sunglasses out on the water. Get a pair without distortion, if possible. More important, however, get a pair that is dark enough. One specialist advises getting them dark enough so that you cannot see your reflection in a mirror when you are wearing them. Get a pair that does not distort colors too much because you probably will want to use them for driving. The yellow-green types come highly recommended. They filter out harmful rays and do not distort colors too much. Furthermore, they give an appearance of freshness and coolness to the scene.

If you are untanned but still insist on gambling with sunshine, stack the cards in your favor. Lather your exposed skin with suntan lotion. It's your first line of defense. The sticky lotions and creams are generally recommended over the thinner oils on two counts: they stay put longer and are usually more opaque. They do a better job of

screening out the harmful invisible light rays. A good cream or lotion will permit you to stay out in the sunshine several times longer, and with less harmful effects, than no protection at all. Remember to renew the application whenever it wears thin.

Sunburn is aptly named, for the effect on the body is very similar to that caused by fire or boiling water. That is why severe sunburn is often accompanied by shock, chills, nausea, and sometimes high fever. The outer layers of the skin are destroyed and must be replaced from the layers underneath. The whole system is poisoned by the burn, bringing on exhaustion and a feeling of depression.

Sunburn should be treated as any other burn. Relieve the pain and discomfort first, then attend to the healing. You may be able to get relief by applying a solution of starch and cold water in the form of a wet pack. If applied soon enough, it may prevent blistering. Try the same with a solution of bicarbonate of soda and water. You

may be able to relieve the itching and burning somewhat by coating the affected area with a bland oil or grease—olive oil, cold cream, lard—anything to soothe the tortured skin.

Your druggist is sure to have his shelves crammed with sunburn ointments in the summer. He may be able to recommend a satisfactory burn treatment. Don't take chances with an exceptionally bad burn, however. Burns are always very susceptible to infection. If your skin is too hot for you to handle, put it in your doctor's hands. Let him do the thinking and worrying for you.

If you are one of those individuals who feel that they just have to take back a boiled-lobster look to prove they have been on vacation, wait until the last day before you acquire it. You will at least have enjoyed your vacation up to the last day. You may even be lucky. It may rain all day. But if you do get burned and someone slaps you on the back, don't blow your top. You've got it coming.

WHAT'S NEW IN FISHING BOOKS

By Hugh Johnson

The good modern books on bass fishing can be counted on the fingers of one hand, while the ever mounting mass of tomes about trout fishing is a plague not only to reviewers but to readers who must try to decide how much of this over-production is worth reading. Except for the books of a few writers like Ray Bergman, Jason Lucas and John Alden Knight, there has been insufficient recognition of the bass in hard-cover literature of the present day. This superlative fish, indigenous to the North American continent and typically American in his bounce, vigor and extroversiveness deserves considerably more than the left-handed treatment he has been getting from contemporary angling authors. Hence, it is a pleasure to note publication of *Black Bass Fishing* by Robert Page Lincoln (The Stackpole Co., Harrisburg, Pa. \$5.00)

I have been wondering for years

when Robert Page Lincoln would break out into a book. He's written hundreds of thousands of words in periodicals, more on bass fishing than any other writer, and his name is familiar to fishermen all over the country. *Black Bass Fishing* is the expression of a life-time's experience—and what a full, colorful, richly informative expression it is!

There are several basic reasons why this book excites my enthusiasm, over and above the fact that it is a good addition to the too-meagre literature of bass fishing. One is that the author not only covers the fundamentals of the sport—the kinds of bass and their way of life, the various kinds of tackle and methods, the characteristics of bass waters, etc., but he gives emphasis to matters that have been but slightly touched upon before. For example, deep fishing and deep trolling which produce most of the "champ" catches, get a full chapter. Live bait fishing gets

more than a condescending acknowledgement; Bob Lincoln gives it the dignity of detailed, almost enthusiastic treatment. And there is more in this book about how to fish the tough spots—in the brush and around sunken roots and other hazard areas—than I've ever read before in one place.

I expect that one feature that will be widely applauded by fishermen (if not by lure manufacturers whose "pets" may have been omitted or insufficiently praised) is the fact that the author calls plugs and lures by their regular trade names so that a fisherman, after reading *Black Bass Fishing*, can go out and buy, if he wishes, one or more of the exact lures of which Bob Lincoln writes.

There is an angling maturity underlying *Black Bass Fishing*, the common sense and practical wisdom of an honest-to-goodness fisherman from way back. What Lincoln says *sounds* right. It has the credibility and earthiness of an old guide's instructions, and the style is such that the reader has complete grasp of everything the author says. Only occasionally, when the author dallies a little too long in the recollection of an experience or in quoting what Meehan or somebody else wrote

about spawning, does the reader's interest lag. For the most part, however, this book is "on the target" all the way, holding the reader with a full flow of solid bass fishing information. Bob Lincoln's strong feelings about conservation are convincingly expressed in Chapter 24 and, for that matter, throughout the book. A unique feature of the book is the author's tribute in the Appendix to the great writers of bass literature of the past and present and to the individuals and firms responsible for the advances in tackle, methods and theory.

The line-drawing illustrations by Steve Miller are decorative (and quite humorous) rather than instructive—except for a few drawings which illustrate casting techniques. That's just right for this book because the author's text is so clear that it doesn't need explanatory illustration. I wish, however, that two drawings had been included, on facing pages, showing precisely the distinguishing identification features of the smallmouth bass and the largemouth bass. Doc Henshall would have approved of this book and Senator Hawes would have liked it. If I'm right on that, no higher praise could be accorded *Black Bass Fishing*.

* * *

A far cry from American bass fishing is *Alaskan Adventure* by Jay Williams (also published by The Stackpole Company, \$4.50). The author knows Alaska thoroughly, and in this book about his experiences there as a member of a boundary survey party, as coal prospector, agent for the U. S. Forest Service, and as sportsman's guide, his love for the land and its people and wildlife is apparent. *Alaskan Adventure* is packed with detailed information about the rivers and forests and islands and weather from Ketchikan to the Bering Sea, and there are stories about bear, deer, wolves and the human natives of Alaska—but surprisingly little about fish and fishing.

Jay Williams must be a great guy and it is unfortunate that he can't write well. The style here is uneven and pedestrian. We should not expect stylistic perfection in a book of this kind, but continuously flat writing simply does not hold the reader's interest. There is no change of pace, from description of a calm scene in camp to an account of a charging brown bear.

If you have a natural interest in Alaska and in putting some effort into gathering information about it, this book is for you. Otherwise, you would find it slow going.

Illegal Devices Confiscated in Jefferson County

Each year a number of fish are killed with illegal devices including carbide light, auto light reflectors, homemade gigs and dynamite wires. Fish Commission Warden Dean R. Davis apprehended violators in state-wide effort to stamp out illegal, unsportsmanlike fishing practices.



PENNSYLVANIA FISH LAW VIOLATIONS

ALLEGHENY COUNTY

Amen, Regis, 60 Garden Terrace, Pittsburgh, Pa. Fishing during closed season	\$ 5.00
Bartholomew, Richard, 22 Bright Ridge Ave., Pittsburgh, Pa. Fishing during closed season	5.00
Bittner, John, 244 Hazlewood Ave., Pittsburgh, Pa. Fishing during closed season	5.00
Bloomer, Ed. J., 3734 May Fair St., Pittsburgh, Pa. Fishing during closed season	5.00
Bon, Jake, 624 13th Ave., Munhall, Pa. Fishing during closed season	5.00
Bon, Sophie, 624 13th Ave., Munhall, Pa. Fishing during closed season	5.00
Ceislak, Leonard, 18 Schoen St., McKees Rocks, Pa. Fishing during closed season	5.00
Daniels, Wm., 622 Rebecca Ave., Pittsburgh, Pa. Fishing during closed season	5.00
Fullerton, Frank D., 6533 Meadow St., Pittsburgh, Pa. Fishing during closed season	5.00
Galus, Wm., 1923 Lithgow St., Pittsburgh, Pa. Fishing during closed season	5.00
Gleckner, Elmer, 1228 Voskimp St., Pittsburgh, Pa. Fishing during closed season	5.00
Graham, Mrs. Dorothy, 2000 Orchard Ave., Homestead, Pa. Fishing without a license	25.00
Graham, Mrs. Dorothy, 2000 Orchard Ave., Homestead, Pa. Fishing during closed season	5.00
Iezzi, Joseph, 204 Shetland St., Pittsburgh, Pa. Fishing during closed season	5.00
Kotwica, Bruno, 914 Horner St., Brackenridge, Pa. Fishing during closed season	5.00
Lazor, Joseph, 3821 Acorn St., Pittsburgh, Pa. Fishing during closed season	5.00
Lytle, Mr. A. H., 6 Schoolhouse Rd., Glenwillard, Pa. Fishing without a license	25.00
Marino, Joe, 404 W. 8th Ave., Tarentum, Pa. Illegal device	20.00
Martinkovich, Paul, 201 W. 7th Ave., Tarentum, Pa. Illegal device	20.00

Mazza, J., 1118 Faust St., Pittsburgh, Pa. Fishing during closed season	5.00
Mazzel, Louis, 822 Farrdale St., Pittsburgh, Pa. Fishing during closed season	5.00
Myers, Jack, 209 E. 7th Ave., Homestead, Pa. Fishing during closed season	5.00
Myers, June, 209 E. 7th Ave., Homestead, Pa. Fishing during closed season	5.00
Ofchinick, Wm. A., 109 Watkins Ave., Wilmerding, Pa. Fishing during closed season	5.00
Suser, C. H., 400 Homewood Ave., Pittsburgh, Pa. Fishing during closed season	5.00
Perkosky, John, 12 Sycamore St., Carnegie, Pa. Fishing during closed season	5.00
Ruszkowski, Ed., 7023 Flyury Way, Pittsburgh, Pa. Fishing during closed season	5.00
Stahl, Melvin, 5900 Center Ave., E. Liberty, Pittsburgh, Pa. Fishing during closed season	5.00
Stief-vater, Joseph J., 4256 Perrisville Ave., Pittsburgh, Pa. Fishing during closed season	5.00
Valentino, Anthony, 239 Kaercher St., Hazelwood, Pa. Fishing during closed season	5.00

ARMSTRONG COUNTY

Bondi, Joe, Yatesboro, Pa. Exceeding creel limit	70.00
Bondi, Joe, Yatesboro, Pa. Interfering with an officer	100.00
Craft, Byron, 1416 Grant Ave., Kittanning, Pa. Fishing during closed season	5.00
Cravener, James, R. D. No. 5, Kittanning, Pa. Fishing during closed season	5.00
Koteck, John, 272 Beal Ave., Leechburg, Pa. Fishing during closed season	5.00
Koteck, John, 272 Beal Ave., Leechburg, Pa. Fishing during closed season	5.00
Robino, Dominic, Yatesboro, Pa. Exceeding creel limit	20.00
Salsgiver, A. O., R. D. No. 1, Kelly Station, Pa. Fishing during closed season	5.00
Salsgiver, Dale W., Kelly Station, Pa. Fishing during closed season	5.00
Shuster, Ed. C., 137 Franklin Ave., Vandergrift, Pa. Fishing during closed season	5.00
Whitman, Erhart, R. D. No. 5, Kittanning, Pa. Fishing during closed season	5.00

BEAVER COUNTY

Giles, Paul, R. D. No. 3, Beaver Falls, Pa. Fishing during closed season	5.00
Giles, Robert, R. D. No. 3, Beaver Falls, Pa. Fishing during closed season	5.00
Giles, Roy, R. D. No. 3, Beaver Falls, Pa. Fishing during closed season	5.00
Haddock, David, 710 2nd Ave., Beaver Falls, Pa. Fishing during closed season	5.00
March, Charles, 324 2nd Ave., Beaver Falls, Pa. Fishing during closed season	5.00
Rocco, Cosimo, 111 8th Ave., Beaver Falls, Pa. Fishing during closed season (second offense)	20.00
Vohar, George, 413 Washington St., Leetsdale, Pa. Fishing on Sunday without permission of the landowner	25.00
Vohar, John, 1027 Spruce St., Ambridge, Pa. Fishing on Sunday without permission of the landowner	25.00

BEDFORD COUNTY

Davis, Ambert, Clearville, Pa. Fishing during closed season	5.00
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Diehl, Woodrow W., R. D. No. 1, Bedford, Pa. Fishing during closed season 5.00

BERKS COUNTY

Brodman, Arthur, 317 Court St., Reading, Pa. Fishing without a license 25.00
 Gechter, Irwin, R. D. No. 2, Bernville, Pa. Fishing during closed season 5.00
 Helms, Lester, 700 Franklin St., Reading, Pa. Fishing during closed season 5.00
 Hodgkins, Karl, 562 S. 16th St., Reading, Pa. Fishing during closed season 5.00
 Jacob, John, Rt. 422 Douglesville, Pa. Fishing during closed season 5.00
 Kantner, John Jr., 516 Elm St., Reading, Pa. Fishing during closed season 5.00
 Kurtz, Ed., 562 S. 16th St., Reading, Pa. Fishing during closed season 5.00
 Motacki, Wm., 223 S. Third Ave., W. Reading, Pa. Fishing during closed season 5.00
 Ortyl, Stanley J., 1032 Spruce St., Reading, Pa. Fishing during closed season 5.00
 Trumbore, Charles, Earlville, Pa. Fishing during closed season 5.00
 Wagner, Dorothy, 937 Washington St., Reading, Pa. Fishing during closed season 5.00
 Wagner, Leon, 937 Washington St., Reading, Pa. Fishing during closed season 5.00

BLAIR COUNTY

Good, Robert, 800 Chestnut Ave., Altoona, Pa. Three trout in closed season 30.00
 Good, Robert, 800 Chestnut Ave., Altoona, Pa. Fishing during closed season 5.00
 Kiselnicki, T. R., 1622 17th Ave., Altoona, Pa. Fishing during closed season 5.00
 Ratzesberger, Ludwig, 2316 3rd Ave., Altoona, Pa. Fishing during closed season 5.00
 Thomas, John F., 3164 Walnut Ave., Altoona, Pa. Fishing without a license 25.00

BRADFORD COUNTY

Beeman, Stephen, R. D. No. 2, New Albany, Pa. Fishing during closed season 5.00

BUCKS COUNTY

McDowell, Robert C., 235 Washington St., Doylestown, Pa. Fishing during closed season 5.00

BUTLER COUNTY

Bestwick, Lamont, R. D. No. 1, Saxonburg, Pa. Fishing during closed season 5.00
 Bostic, Wm., R. D. 3, Irwin, Pa. Fishing during closed season 5.00
 Jaffer, Robert, R. D. 3, Irwin, Pa. Fishing during closed season 5.00
 Kavel, Samuel, R. D. 3, Irwin, Pa. Fishing during closed season 5.00
 Mansfield, Eugene, R. D. No. 2, Valencle, Pa. Fishing during closed season 5.00
 Pati, Mario, 547—6th Ave., New Kensington, Pa. Fishing during closed season 5.00
 Sychak, Martha, 158 Kohler Ave., Lyndora, Pa. Fishing during closed season 5.00
 Sychak, Peter, 153 Kohler Ave., Lyndora, Pa. Fishing during closed season 5.00

CAMBRIA COUNTY

Edwards, Cluster, 720 Kennedy Ave. Johnstown, Pa. Fishing during closed season 5.00

Fye, Sidney, 22 McCoy St., Nanty Glo., Pa. One undersized trout .. 10.00
 Gallaher, Aladia, St. Michaels, Pa. Fishing during closed season 5.00
 Gallaher, Sybert, Gallitzen, Pa. Fishing during closed season 5.00
 Kallister, W. M., R.D.No.1, Barnesboro, Pa. Fishing during closed season 5.00
 Lasinsky, Charles, Nanty Glo, Pa. Fishing during closed season 5.00
 Lasinsky, Stanley, Nanty Glo, Pa. Fishing during closed season 5.00
 Ritchey, Wm., R. F. D. 1, South Fork, Pa. Fishing during closed season 5.00
 Sherry, Henery, St. Michaels, Pa. Fishing during closed season 5.00
 Strayer, Ardell, Box 15, R. D. No. 1, South Fork, Pa. Fishing during closed season 5.00
 Wertz, Rollison, 335 Homer St., Johnstown, Pa. Fishing during closed season 5.00

CARBON COUNTY

Getz, Clarence, 225 Center St., Lehighton, Pa. Fishing during closed season 5.00
 Schrenk, Martin, R. D. No. 1, Weatherly, Pa. Unnaturalized foreign-born fishing in Quakake Creek .. 20.00

CENTRE COUNTY

Fleck, Wm. J., 315 S. Monroe St., Bellefonte, Pa. One undersized trout 10.00

CHESTER COUNTY

Allen, Samuel, R. D. No. 1, Coatesville, Pa. Fishing during closed season 5.00
 Donohue, Wm. F., 814 Madison St., Coatesville, Pa. Fishing during closed season 5.00
 Dudas, John L., 155 Franklin St., Coatesville, Pa. Fishing during closed season 5.00
 Hopp, Arthur C., 223½ Gay St., Phoenixville, Pa. Fishing during closed season 5.00
 Jeschon, Paul R. Jr., R. D. No. 2, West Chester, Pa. Fishing during closed season 5.00
 Jones, Harlan, 128 E. Gay St., West Chester, Pa. Fishing during closed season 5.00
 Patton, Jackson S., 21 York Ave., Coatesville, Pa. Fishing during closed season 5.00
 Wallace, Franklin, Nottingham, Pa. Fishing during closed season 5.00

CLARION COUNTY

Bish, Howard, Strobeldon, Pa. Fishing during closed season 5.00
 Eck, Richard, Lucinda, Pa. Fishing during closed season 5.00
 Miller, Clair, Box 12, Clarion, Pa. Fishing during closed season 5.00
 Miller, Dorothy, Box 12, Clarion, Pa. Fishing during closed season 5.00

CLEARFIELD COUNTY

Brink, Walter, Mahaffey, Pa. Fishing during closed season 5.00
 Campbell, Robert, Morrisdale, Pa. One undersized trout 10.00
 Cimino, Louis, R. D. No. 2, DuBois, Pa. Fishing during closed season 5.00
 DeArmitt, Luther, 318 S. Brady St., DuBois, Pa. Fishing during closed season 5.00
 Freidoff, Joseph, Box 29, Coalport, Pa. Fishing during closed season 5.00
 Gilbert, Fred, R. D., Rockton, Pa. Fishing during closed season 5.00
 Good, Vincent, 132 Reed St., DuBois, Pa. Fishing during closed season 5.00
 Hile, R. S., Ogden Ave., Clearfield, Pa. Exceeding creel limit 10.00
 Jacox, Reed, 521 Ream St., DuBois, Pa. Fishing during closed season 5.00

Kibler, Lambert, Coalport, Pa. Fishing during closed season 5.00
 Kriner, B. F., 316 Shaffer Ave., DuBois, Pa. Fishing during closed season 5.00
 Kriner, Kermit, 316 Shaffer Ave., Ave., DuBois, Pa. Exceeding creel limit 10.00
 Kulbacki, Stanley, 713 W. Long Ave., DuBois, Pa. One trout in closed season 10.00
 LaBorde, Merrill, Rockton, Pa. Fishing during closed season 5.00
 McCarvey, Cloyd, Irvona, Pa. Rules and regulations 20.00
 McManigal, Theodore, 316 Shaffer Ave., DuBois, Pa. Exceeding creel limit 10.00
 Peterson, Arnold, 316 S. Brady St., DuBois, Pa. Fishing during closed season 5.00
 Rasavage, Anthony, 705 W. Long Ave., DuBois, Pa. One trout in closed season 10.00
 Shaffer, Vernon, Rockton, Pa. Fishing during closed season 5.00
 Shepler, Clair, Mahaffey, Pa. Fishing during closed season 5.00
 Shepler, Wm., Mahaffey, Pa. Fishing during closed season 5.00

CLINTON COUNTY

Aikley, Michael, 302—13th St., Renovo, Pa. Fishing during closed season 5.00
 Ferrara, James, 64 E. Main St., Lock Haven, Pa. Offering for sale one undersized fish 20.00
 Green, John, North Bend, Pa. Two undersized trout 20.00
 Mellott, Benjamin, 411 Wood Ave., Flemington, Pa. Six undersized trout 60.00
 Mellott, Ruth, 411 Wood Ave., Flemington, Pa. Two undersized trout 20.00
 Pagnotto, Francis, 209—13th St., Renovo, Pa. Fishing during closed season 5.00
 Stevenson, Donald, 118—10th St., Renovo, Pa. Rules and regulations 20.00

COLUMBIA COUNTY

Kyle, Donald, Matzville Rd., Berwick, Pa. Rules and regulations.. 20.00
 Persing, David, R. D. 1, Eleysburg, Pa. Rules and regulations 20.00
 Ramsey, Wm., 60 Wyoming St., Wilkes-Barre, Pa. Rules and regulations 20.00
 Watts, Glen I., R. D. No. 1, Millville, Pa. Illegal device 20.00

CRAWFORD COUNTY

Andrich, John, R. D. 1, Titusville, Pa. Exceeding creel limit 130.00
 Burdick, Robert, 111 Geale St., Titusville, Pa. Exceeding creel limit 120.00
 Schlosser, Wilson, 323 W. Elm St., Titusville, Pa. One undersized trout 10.00

CUMBERLAND COUNTY

Gsell, Jacob, Hampton Township, Pa. Fishing during closed season 5.00
 Harris, Wm., 3461 Market St., Camp Hill, Pa. Fishing during closed season 5.00

DAUPHIN COUNTY

Bruckacker, Russell, 272 Myers St., Steelton, Pa. Fishing during closed season 5.00
 Ferra, Ralph, Herndon, Pa. Fishing during closed season 5.00
 Hoffer, Kenneth, 276 Myers St., Steelton, Pa. Fishing during closed season 5.00
 Kuhns, Joseph, 276 Myers St., Steelton, Pa. Fishing during closed season 5.00
 Lingle, Richard, 1042 Locust St., Oberlin, Pa. Fishing during closed season 5.00

Sheaffer, Monroe, Ellzabethville, Pa. Fishing during closed season	5.00				
Zelders, Charles H., 539 S. 19th St., Harrisburg, Pa. Fishing in closed season	5.00				
DELAWARE COUNTY					
Buchanan, Paul, 550 Wilkshre Rd., Upper Darby, Pa. Fishing during closed season	5.00				
Defea, Pasquale, 7152 Ruskin Lane, Upper Darby, Pa. Fishing during closed season	5.00				
Kincaid, George, 7052 Marshall Rd., Upper Darby, Pa. Fishing during closed season	5.00				
Schadel, Frederick, 80 S. Harwood Ave., Upper Darby, Pa. Fishing during closed season	5.00				
Tees, Richard, 7118 Ruskin Lane, Upper Darby, Pa. Fishing during closed season	5.00				
Wenger, George, Line Rd., Newtown Square, Pa. Fishing during closed season	5.00				
ERIE COUNTY					
Bowes, Samuel, 513 Wallace St., Erie, Pa. Illegal device	20.00				
Daugherty, L. W., 10 Mellon Ave., Girard, Pa. Fishing during closed season	5.00				
Hallowell, David, 1922 Peach St., 2nd Floor, Erie, Pa. Illegal device	20.00				
Hanes, Harold, 3406 Saltsman Rd., R. D. No. 7, Erie, Pa. Illegal device	20.00				
Janke, Chester, 242 W. 21st St., Erie, Pa. Fishing during closed season	5.00				
Jaskiewicz, Anthony, R. D. No. 2, Waterford, Pa. Fishing during closed season	5.00				
Jaskiewicz, Valentine, 709 E. 12th St., Erie, Pa. Fishing during closed season	5.00				
Kahala, Frank J., R. D. No. 2, Edinboro, Pa. Illegal device	20.00				
Majchrowski, Marion, c/o Smiley Fish Co., Erie, Pa. Offering for sale undersized fish	20.00				
Mikolagewski, Felix, 2602 Van Buren Ave., Erie, Pa. Illegal device	20.00				
Mongera, Paul, R. D. No. 2, Union City, Pa. Illegal device	20.00				
Mucha, John, 5654 Peach St., Erie, Pa. Fishing during closed season	5.00				
Nolte, Charles, 2010 Downing Ave., Erie, Pa. Illegal device	20.00				
Post, Wm., 2030 E. 10th St., Erie, Pa. Fishing during closed season	5.00				
Schreckengost, Henry, R. D. No. 4, Erie, Pa. Fishing during closed season	5.00				
Smith, Thomas, R. D. No. 4, Brandes St., Erie, Pa. Illegal device	20.00				
Williams, Edward, 21 Smith St., N. Girard, Pa. Fishing during closed season	5.00				
FAYETTE COUNTY					
Boyd, John, R. D. No. 1, Box 43-A, McClellandtown, Pa. Fishing without a license	25.00				
Boyd, Mrs. John, R. D. No. 1, Box 43-A, McClellandtown, Pa. Fishing without a license	25.00				
Dahl, Ronald, Mill Run, Pa. Fishing during closed season	5.00				
Fields, Ewing, Lake Lynn, Pa. Fishing during closed season	5.00				
Geary, Harry, Box 212, Connellsville, Pa. Fishing during closed season	5.00				
Gibson, Wm., Route 1, Uniontown, Pa. Fishing during closed season	5.00				
Johnson, Robert, Box 43, Lake Lynn, Pa. Fishing without a license ...	25.00				
Johnson, Robert, Box 43, Lake Lynn, Pa. Fishing during closed season	5.00				
Mankins, Charles, Lake Lynn, Pa. Fishing during closed season	5.00				
Mankins, Charles, Lake Lynn, Pa. Fishing without a license	25.00				
Rehm, James, 410 Penn St., Connelville, Pa. Fishing during closed season	5.00				
FRANKLIN COUNTY					
Goshorn, Franklin, Spring Run, Pa. Fishing during closed season	5.00				
Goshorn, Franklin, Spring Run, Pa. Fishing without a license	25.00				
Goshorn, Franklin, Spring Run, Pa. Illegal device	20.00				
FULTON COUNTY					
Hess, David, Clear Ridge, Pa. Fishing during closed season	5.00				
Hess, David, Clear Ridge, Pa. Fishing without a license	25.00				
HUNTINGDON COUNTY					
Goshorn, Warren, Shirlleysburg, Pa. Fishing during closed season ...	5.00				
Lancaster, Denver, Shirlleysburg, Pa. Fishing during closed season ...	5.00				
INDIANA COUNTY					
Gess, Thomas, Blairsville, Pa. Fishing during closed season	5.00				
Fetterman, Wilmer, Fishing during closed season	5.00				
Hastings, Luther, Altman, Pa. Fishing during closed season	5.00				
Kingston, Thomas, Armaugh, Pa. Fishing during closed season ...	5.00				
Miller, Jess, Rossiter, Pa. Fishing during closed season	5.00				
Moore, Wm., Box 7, Blacklick, Pa. Fishing during closed season ...	5.00				
JEFFERSON COUNTY					
Hibbard, Harry, Fishing during closed season	5.00				
LACKAWANNA COUNTY					
Boyer, Frank, 36 Wurtz Ave., Scranton, Pa. Fishing during closed season	5.00				
Doyle, John, 508 N. Hyde Park Ave., Scranton, Pa. Fishing during closed season	5.00				
Mack, Russell, Sr., 910 Luzerne St., Scranton, Pa. Fishing during closed season	5.00				
Materazzi, Joseph, 57 Connell St., Old Forge, Pa. Fishing during closed season	5.00				
Ospovitch, Alex, 1700 Dorothy St., Scranton, Pa. Fishing during closed season	5.00				
Raynock, Joseph, 1310 S. Main Ave., Scranton, Pa. Fishing during closed season	5.00				
Sakevich, Simon, 21 Wurtz Ave., Scranton, Pa. Fishing during closed season	5.00				
Wallace, George Jr., 1119 Rundle St., Scranton, Pa. Fishing during closed season	5.00				
Wenzel, Harry, 128 S. Bromley St., Scranton, Pa. Fishing during closed season	5.00				
White, Wm., 916 Meadow Ave., Scranton, Pa. Fishing during closed season	5.00				
Wilson, Walter, 1515 Thackery St., Scranton, Pa. Fishing during closed season	5.00				
LANCASTER COUNTY					
Feltch, Charles, R. D. No. 2, Columbia, Pa. Fishing during closed season	5.00				
Heinaman, Isaac, Alley N., Columbia, Pa. Fishing during closed season	5.00				
Hicks, Howard, 207 W. Orange St., Lancaster, Pa. Fishing during closed season	5.00				
Minnick, Lee, 153 Stump Alley, Columbia, Pa. Fishing in closed season	5.00				
Mohr, Leon, Bainbridge, Pa. Fishing in closed season	5.00				
LAWRENCE COUNTY					
Andrews, Warren, R. D. 1, Wampum, Pa. Fishing during closed season	5.00				
Hartzell, Howard, R. D. 4, New Castle, Pa. Fishing during closed season	5.00				
Moore, James, R. D. 2, Wampum, Pa. Fishing during closed season	5.00				
Phenicle, John, R. D. 4, New Castle, Pa. Fishing during closed season	5.00				
Scaglione, Charles, Box 120, R. D. 1, New Castle, Pa. Fishing without a license	25.00				
Walzer, Louis, 819 W. Washington St., New Castle, Pa. Fishing during closed season	5.00				
LEHIGH COUNTY					
Henry, Donald, Overlooks Springs, Emmaus, Pa. Fishing during closed season	5.00				
Kaiser, John, 438 Grant St., Allentown, Pa. Fishing in nursery waters	100.00				
Lahn, Joseph, East Texas, Pa. Fishing during closed season	5.00				
Schmoyer, Frank, 1402 N. 22nd St., Allentown, Pa. Fishing during closed season	5.00				
LUZERNE COUNTY					
Andrews, Albert, R. D. No. 1, Plymouth, Pa. Fishing during closed season	5.00				
Barkasy, Anthony, 202 Hillside Ave., Edwardsville, Pa. One undersized trout	10.00				
Fredda, John, 149 E. 7th St., Wyoming, Pa. Fishing during closed season	5.00				
Grenda, Stanley, 58 Lehigh St., Wilkes-Barre, Pa. Illegal device ..	20.00				
Mikaszewicz, Anthony, 205 E. Grand St., Nanticoke, Pa. Exceeding creel limit	10.00				
Novak, George, 237 Simpson St., Dupont, Pa. Fishing during closed season	5.00				
Pascucci, John, 101 Monument Ave., Wyoming, Pa. Fishing during closed season	5.00				
Ruckel, Ralph, 251 Center St., Wanamie, Pa. Fishing in nursery waters	100.00				
Shimshock, George, 17 N. Hancock St., Wilkes-Barre, Pa. Fishing during closed season	5.00				
Sippel, Wm., 432 Rutter Ave., Kingston, Pa. Operating motorboat without a license	5.00				
Tomolonis, Albert, 158 E. Beads St., Plymouth, Pa. Fishing during closed season	5.00				
Tonti, Gullio, 154 Valley St., Exeter, Pa. Fishing during closed season	5.00				
LYCOMING COUNTY					
Bastion, Earl, 48 W. Houston St., Montgomery, Pa. Fishing during closed season	5.00				
Columbine, Harry, 804 Diamond St., Williamsport, Pa. Fishing during closed season	5.00				
Confer, Wm., 2310 Fox St., Williamsport, Pa. Fishing during closed season	5.00				
Dowling, James, 2740 Dove St., Williamsport, Pa. Fishing during closed season	5.00				
Helmrich, Wm., 139 5th St., Williamsport, Pa. Selling undersized bass	20.00				
Kuhns, Phillip, R. D. No. 2, Williamsport, Pa. Fishing during closed season	5.00				
Oberdorf, John, 50 W. Houston St., Montgomery, Pa. Fishing during closed season	5.00				
Teufel, James, 712 Allegheny St., Jersey Shore, Pa. One undersized trout	10.00				
Zerbe, Walter, R. D. No. 1, Linden, Pa. Fishing during closed season	5.00				
MERCER COUNTY					
Blahut, Elizabeth, R. D. No. 5, Greenville, Pa. Fishing without a license	25.00				
Brest, Samuel, Sandy Lake, Pa. Illegal device	20.00				
Kudlak, John, Sandy Lake, Pa. Fishing without a license	25.00				

MIFFLIN COUNTY

Sunderland, Clay, R. D. 1, McVeytown, Pa. Fishing without a license 25.00

MONROE COUNTY

Christman, Fred, 147 King St., E. Stroudsburg, Pa. Rules and regulations 20.00
 Eggert, Russell, Mt. Pocono, Pa. Rules and regulations 20.00
 Heller, Cecil, Henryville, Pa. Rules and regulations 20.00
 Seigfried, Stanley, 172 Spring St., E. Stroudsburg, Pa. Four undersized trout 40.00
 Winters, Clifford, 24 Stofflet St., Stroudsburg, Pa. Fishing without a license 25.00
 Zuchelli, Frank, 729 Main St., Stroudsburg, Pa. Fishing during closed season 5.00

MONTGOMERY COUNTY

Fair, Charles, 1007 W. Lafayette St., Norristown, Pa. Failure to display license 5.00
 Grant, Norman, 114 S. Main St., Hatfield, Pa. Rules and regulations 20.00
 MacQuilkin, James, 16 Knight St., Hatboro, Pa. Fishing during closed season 5.00
 Scheetz, Harry, Road A, Apt. 7C, Hilldale, Pottstown, Pa. Fishing during closed season 5.00
 Swavelly, Richard, R. D. 1, Pottstown, Pa. Illegal device 20.00
 Vanhinger, Samuel, 13 Jamison St., Hatboro, Pa. Fishing during closed season 5.00
 Whitelock, Russell, Box 89, Eddington, Pa. Fishing without a license 25.00
 William, Donald, 5 Stanbridge St., Norristown, Pa. Failure to display license on motorboat 5.00

MONTOUR COUNTY

Whiteman, Ed., 9 Hemlock St., Danville, Pa. Using a borrowed license 25.00

NORTHAMPTON COUNTY

Snyder, Sam, 1550 Wood St., Easton, Pa. Fishing during closed season 5.00

NORTHUMBERLAND COUNTY

Anola, Orlando, 318 S. Shamokin St., Shamokin, Pa. Fishing during closed season 5.00
 Pacocha, Donald, 865 W. Spruce St., Shamokin, Pa. Fishing during closed season 5.00

PERRY COUNTY

Beach, Robert, R. D. No. 1, Landisburg, Pa. Fishing during closed season 5.00
 Jones, Sherman, 211 High St., Duncannon, Pa. Fishing during closed season 5.00

PHILADELPHIA COUNTY

Bartholomew, Walter, 2519 N. Cleveland St., Philadelphia, Pa. Fishing during closed season 5.00
 Schrader, James, 2148 N. Franklin St., Philadelphia, Pa. Fishing during closed season 5.00

PIKE COUNTY

Hotalen, Fred, Dingmans Ferry, Pa. Two undersized bass 20.00
 Plante, Richard, Dingmans Ferry, Pa. One undersized trout 10.00

SCHUYLKILL COUNTY

Altemos, Charles, Pottsville, Pa. Fishing during closed season 5.00
 Deppen, P. E., R. D., Herndon, Pa. Fishing during closed season 5.00
 Faust, James, R. D. No. 1, Barnesville, Pa. Exceeding creel limit .. 30.00
 Feger, Paul, Rebeck, Pa. Fishing during closed season 5.00
 Heiser, John, 32 Coles, Mahanoy City, Pa. Exceeding creel limit .. 30.00

Kemack, John, R. D. No. 2, Pottsville, Pa. Fishing during closed season 5.00
 Keskie, Frank, 322 W. Coal St., Shenandoah, Pa. Fishing during closed season 5.00
 Kubek, Paul, 167 Millcreek Ave., Pottsville, Pa. Rods not under immediate control 20.00
 Kubishin, George, 34 S. Cleveland, McAdoo, Pa. Exceeding creel limit 20.00
 Lubold, Albert, R. D., Herndon, Pa. Fishing during closed season 5.00
 Reissnyder, Leonard, Long Ave., Orwigsburg, Pa. Fishing during closed season 5.00
 Stefnonsky, Joseph, Minersville, Pa. Fishing during closed season 5.00
 Stevens, Francis, Box 164, Minersville, Pa. Fishing during closed season 5.00
 Walters, Lewis, E. Market St., Pottsville, Pa. Fishing during closed season 5.00
 Zukovich, Mike, E. McAdoo, Pa. Fishing during closed season 5.00
 Zukovich, Paul, E. McAdoo, Pa. Fishing during closed season 5.00

SNYDER COUNTY

Inch, Bobby J., Mt. Pleasant Mills, Pa. Fishing during closed season 5.00
 Varner, Richard, R. D. No. 1, Liverpool, Pa. Fishing during closed season 5.00

SOMERSET COUNTY

Allison, Herbert, 1444 Graham Ave., Windber, Pa. Fishing during closed season 5.00
 Beaner, Russell, Jenners, Pa. One undersized bass 10.00
 Beegle, Laurence, Box 123, Friedens, Pa. Fishing during closed season 5.00
 Bucy, Howard, Wellersburg, Pa. Fishing during closed season 5.00
 Croyal, Vernon, Kantner, Pa. Fishing during closed season 5.00
 Delasko, Steve, R. D. No. 1, Cairnbrook, Pa. Fishing during closed season 5.00
 Hagens, Donald, Kantner, Pa. Fishing during closed season 5.00
 Holliday, Glenn, R. D. No. 3, Confluence, Pa. Eight bass in closed season 80.00
 Knapp, Michael, Central City, Pa. Fishing during closed season 5.00
 Lamar, Elmer, 500 Railroad St., Windber, Pa. Fishing during closed season 5.00
 Letosky, Charles, R. D. No. 1, Cairnbrook, Pa. Fishing during closed season 5.00
 Nosel, Stephen, Cairnbrook, Pa. Exceeding creel limit 10.00
 Oakes, Chester, 1105 Graham Ave., Windber, Pa. Fishing during closed season 5.00
 Onofrey, John, Cairnbrook, Pa. Fishing during closed season 5.00
 Reese, Joanne, Berlin, Pa. Fishing during closed season 5.00
 Reese, Paul, Berlin, Pa. Fishing during closed season 5.00
 Seell, Louthier, Wellersburg, Pa. Fishing during closed period 5.00
 Usjak, Steve, Cairnbrook, Pa. Fishing during closed season 5.00
 Yinkey, Daniel, R. D. No. 1, Somerset, Pa. Fishing during closed season 5.00
 Younkins, Edgar, Rockingham, Pa. Fishing during closed season 5.00
 Younkins, James, Rockingham, Pa. Fishing during closed season 5.00

UNION COUNTY

Heiser, Charles, Lewisburg, Pa. Offering for sale one undersized bass .. 10.00
 Moore, Marvon, West Milton, Pa. One undersized trout 10.00
 Newton, M. W., White Deer, Pa. Fishing during closed season 5.00

Triebley, Edwin, 533 Market St., Lewisburg, Pa. Fishing during closed season 5.00
 Zimmerman, Lawrence, R. D. No. 2, Millmont, Pa. Operating motorboat without a license 10.00

VENANGO COUNTY

Gentile, James, Pacific St., Franklin, Pa. Fishing during closed season 5.00
 Heeter, James, Seneca, Pa. Fishing during closed season 5.00

WASHINGTON COUNTY

Finley, Thomas, Box 131, Slovan, Pa. Fishing during closed season 5.00

WAYNE COUNTY

Krauter, F. Carroll, Newfoundland, Pa. Exceeding creel limit 30.00

WESTMORELAND COUNTY

Balak, Wm., 821 Reservoir St., Mt. Pleasant, Pa. Fishing during closed season 5.00
 Best, Harry, 1737 Ridge Ave., Arnold, Pa. Rules and regulations 20.00
 Cromwell, Charles, R. D. No. 1, Vandergrift, Pa. Fishing during closed season 5.00
 Elwood, John, Avemore, Pa. Fishing during closed season 5.00
 Hileman, Robert, 135 Franklin Ave., Vandergrift, Pa. Fishing during closed season 5.00
 Martinelli, Calvin, Box 263, Harrison City, Pa. Fishing during closed season 5.00
 McMunn, Harvey, R. D. No. 1, Avemore, Pa. Fishing during closed season 5.00
 Moore, George, R. D. No. 1, Ruffs-dale, Pa. Fishing during closed season 5.00
 O'Brien, Mrs. Norman, 2200 10th St., New Kensington, Pa. Fishing during closed season 5.00

YORK COUNTY

Anderson, Ervin, R. D. 3, Dove, Pa. Illegal device 20.00
 Fisher, Ray, 202 Walnut St., Wrightsville, Pa. Failure to display license plate on motorboat 5.00
 Green, Wilbur, 224 W. Market St., York, Pa. Fishing during closed season 5.00
 Snyder, Arthur, 678 E. Philadelphia St., York, Pa. Fishing during closed season 5.00
 Strausbaugh, A. J., R. D. 8, York, Pa. Fishing during closed season 5.00
 Williams, C. K., 948 E. Poplar St., York, Pa. Fishing during closed season 5.00
 Williams, Morgan, 345 W. Market St., Hellam, Pa. Fishing during closed season 5.00

OUT OF STATE

Armstrong, William, 5104 Spring-lake Way, Baltimore, Md. One undersized trout 10.00
 Armstrong, William, 5104 Spring-lake Way, Baltimore, Md. Exceeding creel limit 10.00
 Freeman, John, 162 Central Ave., Milton, Mass. Fishing without a license 25.00
 Belanger, A. J., 724 Harristown Rd., Glen Rock, N. J. Exceeding creel limit 10.00
 Josephite, John, 484 Ferry St., Newark, N. J. Exceeding creel limit 10.00
 McDonnell, James, 782 E. 19th St., Patterson, N. J. Exceeding creel limit 10.00
 Eder, Walter F., 2960 E. 67th St., Cleveland, Ohio. Three undersized trout 30.00
 Heller, Vernon F., 6537 Neuman Ave., Cleveland, Ohio. Two undersized trout 20.00

Vacation Page

(for Young Folks)

The Wish of the Willow

By CARSTON AHRENS
(Copyrighted by Author)

There couldn't have been a sweeter day. The air smelled like candy. The breeze was as soft as a powder puff. The sparkling brook and the birds sang one song after another all morning.

Only Willie Willow Tree was unhappy. When his mother who grew across the stream from him rustled,

"I haven't felt so good all spring!"—

Willie replied sourly,

"I haven't felt good all my life!"

"Goodness," whistled a bright red cardinal who flew in just then,

"What did you whistle 'Goodness' for?" asked Willie fretfully.

"You've never felt good in your whole life! What a thing to say! Here you grow in the warm sun——"

"The sun is always too warm or not warm enough," interrupted Willie.

". . . and the wind——"

"What a wind?" Willie broke in again. "A wind that blows one way and then another. It never makes up its mind where to go!"

". . . and a beautiful view of the mountains. Why," said the bird, "I——"

"I can see only part of the view. I'm too little to see it all."

"But," insisted the cardinal, "when you grow up——"

"Grow up! You sound like my mother. Grow up! That's all I hear. Even when I do grow up, I'll only SEE the mountains; I can't go to them. Trees have to stand still. I wish I were an animal so I could get away from this silly brook and these stupid plants. I can't stand it."

"Goodness," whistled the cardinal.

"And what kind of an animal would you like to be?" said a voice from the stream. And there tiptoe on the tip of a petal of a yellow water lily was a little brown dwarf.

"Why—Why—Why—I'd li-li-like to be a-a-a chip-chip-chipmunk!"

"Goodness," whistled the cardinal. Then he whistled it again. This time it was a long, drawn out

"G—O—O—D—N—E—S—S—"

For all the willow leaves seemed to grow backward and they vanished into the twigs. Then the twigs disappeared into the branches. The branches into the trunk. The trunk seemed to shrink into the roots. And in less time than it took cardinal to whistle, the little tree was completely gone, and there

crouched a chipmunk where it had stood.

Willie pinched himself. Yes, it was true. He was awake and he was a chipmunk! He made sure by crawling down on a rock by Singing Brook and looking at his reflection. He was a chipmunk . . . a perfectly grand one. What excellent whiskers he had . . . what soft, silky fur . . . what a marvelous tail . . . what an elegant stripe on either side of his back.

"For once in my life," he said aloud, "I'm really happy."

But even as he finished the sentence, he discovered that he had a strange empty hollow feeling inside himself. He couldn't understand it. And then suddenly he knew.

"This must be what the animals mean when they say they're hungry. I've never been hungry before!"

Then Willie did a strange thing for a hungry animal to do. He stretched out in the sunshine. Of course, he grew even hungrier.

You see, Willie remembered that leaves take gas out of the air and mix it with sap from the roots and in a very wonderful way they make food for themselves and the whole tree. He forgot that animals can't do this. They have to hunt for their food.

Suddenly Willie had a happy thought. The hawk always went to bed when the sun went down. So when the stars came out, then Willie would eat his fill.

But then he remembered Oscar, the great-horned owl, who went on duty at night when Hiram went to bed. The owl flew so softly that not even the night winds heard a sound.

Once during the afternoon he came under Mother Willow. She was bent with grief and shaken by sobs.

"Mother, mother," he squeaked, leaning his head against her bark.

"Run along, little chipmunk," she answered, "can't you see I'm all broken up? I napped a while ago and while I was asleep some woodcutter must have cut down my boy and carried him away."

There were other things to learn and to fear. He was running through a tunnel in an old stump when he met the red squirrel.

"I say," chattered Reddy, "don't go out that way; Johnny Brown has a trap there."

"What is a trap?" inquired Willie.

Reddy looked at him unbelievably. "Don't you know? It's a wicked thing made of metal, and when it catches you by the leg, it never lets you go. Better not travel in that direction." And he frisked away.

Willie met the mink, the opossum, the raccoon, the shrew, even Sammy Skunk, but they all seemed so different now that he was no longer a willow tree. Since he didn't know which was friend or foe, he hid from all of them.

Just before twilight, while Singing Brook was still a sheet of red from the setting sun, Willie found himself back at the spot where he used to stand.

"It was all very foolish," he said aloud, "for me to wish to be something other than a tree. I've been unhappy and miserable ever since I became a chipmunk."

"Goodness," whistled the cardinal who always seemed to be on hand. "Maybe you're just the miserable type. You must surely remember how unhappy you were as a willow tree."

"I'm sure if I might become a willow once more, I'd never complain again," said Willie.

"Is that a promise?" said a voice from the stream. And there tiptoe on the tip of a petal of a yellow water lily was the little brown dwarf.

"It is! It is!" And even as Willie answered he found himself rustling from head to root with all his leaves in their proper places.

"Willie," called his mother, "I'm so glad to see you. I've had such a dream!"

The little willow stood tall. He waved to the breeze and the mountains. He looked lovingly at the sun. When Hiram, the hawk, perched on his arm for a moment before flying on to his roost in the big pine, Willie never mentioned the way the huge bird had treated him earlier in the afternoon. He looked down with affection on Singing Brook and enjoyed his reflection.

"Mother," he called, "from now on you're going to find me a cheerful willow. I'll not complain any more."

Mrs. Willow did not answer for a long time; she thought she was dreaming again. Cardinal, of course, had an answer,

"Good!" he whistled.



PENNSYLVANIA CRADLE OF FREEDOM



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PENNSYLVANIA ANGLER

1952

WAT FISH • FUNGUS DISEASE • PESKY PUNKIE • GHOST BIRDS

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And— the Pennsylvania Angler Is Right In There Too!

COSTS OF newsprint, paper stock, printing, engraving and mailing have increased more than 100% in ten short years. Practically all newspapers, books and magazines throughout the nation have increased subscription rates many years ago to meet rising costs.

THE ANGLER *has not made one hike* in subscription rates during the past 20 years although we have been victims of the same inflation suffered by all of us.

FINDING IT no longer possible to publish the ANGLER at present subscription rates, the Pennsylvania Fish Commission, after much deliberation, found it imperative and necessary to increase yearly rates from fifty cents (50¢) to one dollar, (\$1.00) effective October 1, 1952.

WE SHALL CONTINUE to accept single, one-year subscriptions up to and including September 30, 1952 after which time new rates will apply.

CLUB RATES will still apply to organized Pennsylvania sportsmens' groups at the usual ten cent (10¢) reduction per subscription or 90¢ per year. Ten or more grouped subscriptions are required of clubs to begin this special rate.

WE KNOW our many friends will understand our predicament and will continue to subscribe to a more colorful, more interesting publication that has become such a cordial and distinctive tie of GOODWILL between the Pennsylvania Fish Commission and anglers everywhere.

**COMMONWEALTH OF
PENNSYLVANIA**

HON. JOHN S. FINE
GOVERNOR

*

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THE COVER . . .

DILEMMA—common to most anglers,
causing disgust almost approaching
that of picking up tackle box without
fastened catches!

Back cover of ancient eel walls in
Susquehanna.

Both photos by Don Shiner



George W. Forrest, Editor

1339 East Philadelphia Street, York, Pa.

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The golden shiner is easily propagated and is a good bait for the larger game fishes.

for personal household use, but the countryside is filled with abandoned chicken houses which are memorials to the people who have tried to expand their speculations into a larger and more remunerative employment. The lack of "know-how" and economic pressure had forced them to seek other methods of livelihood. Thus it is with fish propagation. It takes intelligence, foresight and experience to be successful. Trout hatcheries are examples where experience is necessary. Artificial propagation of trout on a large scale has been carried on in this country since the last half of the nineteenth century. It is not a new business as is found in the bait fish industry, but it is an old established vocation. Nevertheless, each year many hatcheries are sold or abandoned because the purchaser thought anyone could easily

BAIT FISH BONANZA

By KEEN BUSS

Fishery Biologist, Pennsylvania Fish Commission

Photographs by George Gordon

Official Photographer

Pennsylvania Fish Commission

A discussion of the problems facing a prospective propagator of minnows.

THE number of requests for minnow propagation licenses have noticeably increased in recent years. In addition to this, many letters are received at the Pennsylvania Fish Commission's Central Field Office at Bellefonte asking for pertinent information relating to minnow raising as a commercial venture. The tone of the letters implies that the interested persons realize the importance of the artificial propagation of minnows if the natural supply of forage fish is to remain in our waters. More important to them, they also recognize the bait fish business as a highly profitable enterprise; but what they do not recognize are the problems involved if this speculation is to succeed.

The Pennsylvania Fish Commission appreciates the value of legitimate bait

fish "farmers" and encourages them. However, the Fish Commission feels that too many people misunderstand or are misinformed about the problems which will arise in a new venture such as this. To prevent disappointment and, in some cases, a heavy financial loss, it is felt that these problems should be brought to light in a frank discussion.

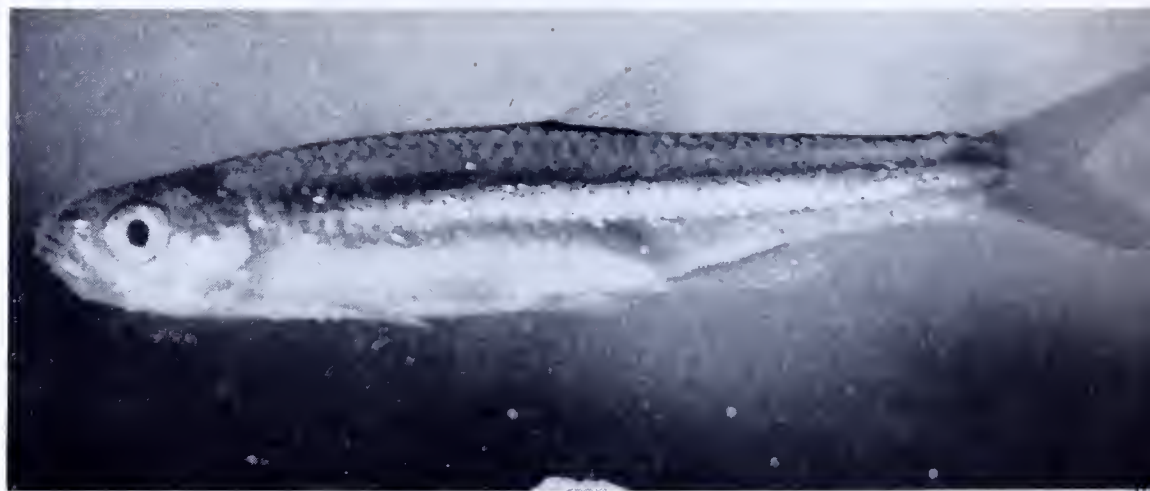
First, in the majority of cases, the persons who wish to raise saleable bait do not have any actual experience in raising fish. True, they have at some time or another kept fish in captivity either in buckets, spring troughs, or minnow boxes; but few have raised any fish or raised fish in the proportions which would be necessary to make it a paying proposition. It is easy to raise chickens to supply a few eggs

raise such prolific animals in the numbers necessary to make his enterprise pay dividends. This basic ingredient, experience, is not an illusive thing, but can be obtained if a prospective propagator of minnows would start on a small scale and build his experience by trial-and-error methods until he has a plausible answer for most of the situations which may arise.

The second important consideration is the property on which the proposed hatchery is to be established. Of course, the limiting factors are the amount of money that is to be invested and the availability of water. As stated above, it is advisable to begin with a small investment. This would mean a comparatively small but practicable water area. Naturally enough, the land should be obtained with a view to expansion in mind, because as methods are developed one will want to expand with his growing market.

This brings up the third problem: the available water on the property. The available water for artificial ponds should be in excess of the minimum requirements. Spring water has its disadvantages as well as its advantages. The water taken directly from springs into propagating ponds will usually be too cold to be conducive to a high rate

of reproduction. This water can be stored in reservoirs to allow the temperature to rise. When the water comes directly from the spring into a very small holding space such as a trough, it should be aerated in many cases to rid it of gases obnoxious to fishes; otherwise it would not be tenable for fishes. A spring should also be protected from surface run-off to prevent silting and pollution. Springs have their advantages in the fact that the cooler waters are better adapted for holding fish during the warm summer months; they are permanently clear; and they are seldom polluted. In some localities the appearance of the water table on the surface, in the form of a swamp, can be utilized by bull-dozing ponds at intervals throughout the area. This forms ponds with dependable water supplies but often the temperature of the water is low. Water can also be obtained from lakes, ponds and streams, but conversion dams are imperative to control the flow to prevent flood damage. Often these waters become roily and silt-laden and this condition can be detrimental to fish life. The temperature of these waters is usually more suitable for minnow reproduction. However, on the other side of the ledger it should be noted that it is almost impossible to eliminate undesirable species of fish. These fish somehow find their way into the ponds and might destroy eggs, fry and adults in addition to occupying the allotted space which desirable species might use.



The emerald shiner, one of the most popular bait fish in the Lake Erie region.

The fathead minnow can be successfully raised and is a good panfish bait.



THE construction of the ponds would vary according to the location. A competent engineer could lay out the plans for the dam, breastwork, or dykes to meet the specifications provided by law. The main points are to keep the water area small so that it can be easily managed and deep enough to prevent the minnows from freezing in the ice or being winterkilled from lack of oxygen. It is impossible to hold and raise all of the bait in one pond since ponds may have to be drained for various reasons during the season. Plans should be made so that each pond can be drained independently of other ponds.

The selection of minnows is the next problem which arises. The ideal minnow would be one which is acceptable to the fishermen because of its attractiveness, hardiness and keeping qualities. It should also withstand the han-

dling necessary to put it on the market. Also, the ideal minnow should have a rapid rate of growth and high reproductive capacities. Minnows which feed predominately on plant life are far more desirable, since this trait lowers the losses from cannibalism. The minnows should be of the size that is required most for local needs. The fishermen in areas where the pike family is the predominate game fish request minnows of larger size, while fishermen in areas where trout and panfish provide the local sport request smaller minnows. Besides this, it should be a species of bait fish which thrives in the ponds available.

The golden shiner (*Notemigonus crysoleucas*) is a minnow which answers most of the above qualifications. The one exception is that when the warm weather arrives and the water becomes warmer, the golden shiner

becomes "soft." It is almost impossible to harvest these fish in August without the fish losing their scales. When the scales are missing, the fish soon develop a fungus infection and die in a few days. Fish that are handled in the wintertime appear to weather the roughest handling, but many months later, when spring arrives, they die of no apparent reason. Actually, the cause of death stems from the rough treatment they received during their "immune" period in the winter. These shiners can be put in cold water to harden during the summer months, but when they are placed in a fisherman's bucket and lowered in the warmer waters of a lake, they soon die. Certainly it saves the bait for the dealer, but it is not an ethical practice conducive to helping future business. The size of the adult golden shiner is especially well adapted for larger game

fishes. The smaller shiners are suitable for panfishes and trout. Another point in their favor is that the fishermen like this species because of the attractiveness of their coloration.

A great advantage of the golden shiner is that it utilizes almost any kind of available food. It will feed on all kinds of plankton, or introduced foods such as oatmeal, cornmeal, bone meal, clam meal, bread, ground marine fishes, and probably many other artificial and natural foods.

The fathead minnow (*Pimephales promelas*) is a hardy, prolific fish. It is ideal for panfish and trout. The small size (maximum 3 to 3½ inches) is a detriment when trying to sell it in a region where the larger game fishes are the predominate species which are sought after by the angler.

The bluntnose minnow with similar spawning habits as the fatheads can be listed in the same category as the fathead—too small for the larger game fishes.

Other minnows which may form the nucleus for profitable propagation are

the emerald shiner (*Notropis atherinoides*), redbelly dace (*Chrosomus eos*), fine-scaled dace (*Pfrille neogaea*), northern creek chub (*Semotilus atromaculatus*), northern pearl dace (*Margariscus margarita nachtriebi*), blacknose dace (*Rhinichthys atratulus*), common shiner (*Notropis cornutus*), spotfin shiner (*Notropis spilopterus*), and brassy minnow (*Hybognathus hankinsoni*). One or more of the bait fish listed above may fit the needs of a bait raiser or be suited to the particular environment he has for his fishes. However, very little experimentation has been done with these species and a bait fish hatchery man would have to experiment and start from the proverbial "scratch" to find the possibilities offered by this group. It would also be difficult to locate a source of breeders since they are not propagated by most hatchery men.

The golden shiner and the fathead are probably the best established and best known hatchery minnows in Pennsylvania. It might be wise for a beginner to use these two species to start.

The fertilization of ponds and the feeding of the fish are an important item. To gain maximum production, the minnows should be artificially fed. Farmers do not expect to get maximum results when they allow their domestic animals to forage for themselves; neither can a fish hatchery man expect his fish to yield maximum results without artificial feeding. Many methods have been tried throughout the country, but there is no established method at this date which would be applicable to all sections of the country; nor is it felt that the optimum in feeds has been developed. The Pennsylvania Fish Commission has carried on an experiment at Pleasant Mount Fish Hatchery for the last four years. A pond was chosen because it corresponded most nearly in size to those which are located in that area of the state. This pond has an area of three-fourths of an acre and a maximum depth of three and one-half feet, with the average depth being two and one-half feet. It is a "dirt" pond with a
(Turn to Page 26)

TABLE I. Data on Golden Shiner Production in Pond #1, Unit #3, at Pleasant Mount State Fish Hatchery

YEAR	FISH PLANTED IN APRIL		FISH REMOVED IN OCTOBER			FERTILIZATION AND FEEDING PROGRAM				
	Amt.	Size	Amt.	Size	Pounds	Month	FERTILIZER (lbs.)		FOOD (lbs.)	
							5-10-5	Sheep Manure	Sodium Nitrate	Marine Fish Food
1948	*100	7"	10,000	1½-2½"	134	April	...	...	...	...
			21,100	2½-3½"	...	May	75	...	...	...
			67†	.....	...	June	75	100	...	...
						July	75	100	...	...
						August	75	...	...	...
						Sept.	...	...	...	...
TOTALS			31,167	.....	134		300	200	...	...
1949	200	7-8"	35,000	½-1½"	10.15	April	...	500	...	...
			40,000	1½-2½"	69.60	May	...	250	...	80
			30,150	2½-3½"	186.33	June	...	500	...	130
			166†	7-8"	23.62	July	...	...	...	200
						August	...	...	...	243
						Sept.	...	...	...	225
TOTALS			105,316	.....	289.70		...	1250	...	878
1950	250	7-8"	46,000	¾-1¼"	13.34	April	...	...	...	...
			41,000	1¼-1¾"	36.90	May	100	150	10	55
			38,000	2-3"	117.42	June	...	...	...	100
			232†	7-8"	33.01	July	...	...	...	19
						August	...	...	...	345
						Sept.	...	...	...	280
TOTALS			125,232	.....	200.67		100	150	10	799
1951	150	7-8"	55,000	1-1½"	30.25	April	...	...	...	...
			43,600	1½-2½"	75.86	May	...	250	...	30
			128†	7-8"	18.21	June	...	...	...	70
						July	...	...	...	155
						August	...	...	...	200
						Sept.	...	...	...	160
TOTALS			98,728	.....	124.32		...	250	...	615

* Plated in May
† Brood Fish Reclaimed

THE CHOKED CHARR

Photographs by George H.
Gordon Fish Commission
Photographer



▲ THIS PICTURE SHOWS HOW DEEPLY THE
LEADER HAS CUT INTO THE FISH.

▼ IN SEVERAL PLACES THE TISSUE HAS
GROWN OVER THE IMBEDDED LEADER.



SHORTLY after the opening
of Fisherman's Paradise this
year, a brook trout was taken in
the ladies' stream which had
somehow ensnared itself with a
length of nylon leader—possibly
a year or so ago. As the fish grew,
the leader cut deeply into its flesh.
The accompanying pictures show
the results of this unusual injury.

▼ VENTRAL VIEW SHOWING THE LEADER IN
RELATIONSHIP TO GILL ARCHES.

▼ MORAL: IT DOESN'T TAKE MUCH GUT TO
CHOKE A TROUT.



THE curse of most bait fishermen is a cottony killer which attacks the minnows in his bucket predominately during the warm weather months. During the hot, humid days of July and August bait fish that are kept in an enclosed area may soon develop white patches which grow and grow until the infected fish is a very dead and useless bait. This is the form of fungus with which most fishermen are best acquainted; but fish in the natural state,

which have never been disturbed by man, are also often affected by this fungus killer. This infection may be prevalent in lakes or streams in the summer—especially where overproduction of fish occurs. However, it is seldom recognized because predators feed readily on diseased fish that become sluggish and less alert.

Fungus diseases are not only present in lakes, streams and minnow boxes, as mentioned pre-

viously, but are also a factor to deal with in aquariums and all kinds of fish hatchery operations. Nearly all fresh-water fish and other aquatic animal life such as frogs, salamanders and aquatic insects may be susceptible to infection, but warm-water fish and especially those species used for bait are often particularly hard hit if handled during summer weather. Mechanical injuries or any condition causing fish to be in poor health tend to start fungus infections.

Fish eggs are also very susceptible to fungus disease. Dead trout eggs, on which the fungus usually starts, are removed from trays daily in most trout hatcheries to prevent the spread of the disease.

What is the cause of this disease which can create so much trouble among the finny denizens of pond, stream and hatchery? It is a minute filamentous plant called a fungus or water mold which lacks chlorophyll, the characteristic green coloring that is found in most other plants. Scientists have classified the plant under water molds in the genus *Saprolegnia*.

This tiny plant is attached to the fish by means of root-like fila-

Fungus Disease -

warm weather

Killer

By ARTHUR D. BRADFORD,
Pathologist,

Pennsylvania Fish Commission

Infections often begin at sites of mechanical injury. A small patch of fungus has started on a cut on this minnow's back.



ments which penetrate through the skin and may involve the deeper muscle tissues. The fungus can develop on any part of the fish and often appears as small, white patches. In advanced stages the infected fish often looks as though it were adorned in a cotton overcoat. Silt and debris may collect in the patches of fungus giving the infected area a dirty brown color.

Reproduction of the small water fungus takes place most commonly by means of small motile bodies called zoospores. These zoospores are produced in enormous numbers and can spread the infection very rapidly from fish to fish. Fungus spores of other types may also be present and practically every water area contains these "seeds" which are ready to start growing when conditions are favorable.

Control of fungus disease is often a major problem for the fish culturist. In general, healthy, uninjured fish are not likely to be affected. However, infection may follow any slight mechanical injury such as removal of scales through netting operations. Fish hatcheries usually handle warm-water species such as bass, sunfish and catfish during the cooler weather of spring or fall when outbreaks of fungus disease are less likely to occur.

Trained technicians are often able to control or cure the disease by dipping fish in salt or other chemical solutions. The

chemicals may themselves be very toxic to fish and must be used with great caution. While the average minnow fisherman would not be able to use these chemical dips, he can, by observing the following rules, tend to minimize the chances of heavy loss due to fungus:

Minnows should be kept in clean, cool water if at all possible

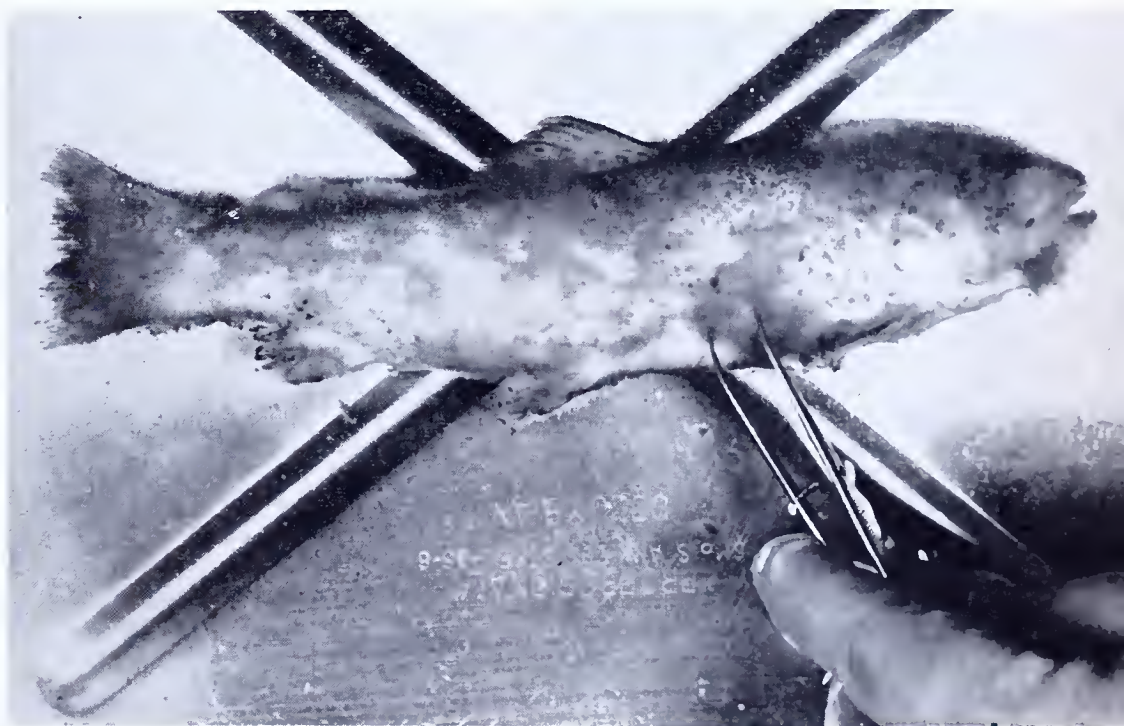
and *overcrowding should be avoided.*

Any dead or dying fish should be removed from the container at regular intervals. Dead fish soon become covered with fungus and produce thousands of spores that may infect the living fish.

During very hot weather it is advisable not to retain minnows that have been hooked.



Dead minnows that are not removed from buckets or bait boxes may develop a heavy "cottony overcoat" of fungus. This overcoat produces enormous numbers of spores that may infect other minnows.



▲ Dying brown trout with a heavy fungus infection. Dirt and debris tend to collect in the thread-like fungus patches.

◀ Fungus destroyed this patch of fathead minnow eggs which were deposited on the underside of a stone.

By Dr. GEORGE WALLACE

Curator—Section of Insects and Spiders

Carnegie Museum, Pittsburgh, Pa.

Where this little insect, so tiny the Indians named them "No-see-ums," gets all that power into a bite making life miserable for anglers and outdoor people, is explained in this excellent descriptive article.

THE PESKY PUNKIE



This is the villain, the pesky punkie approximately 12 times natural size.

WHEN you receive your first punkie bite, the chances are that you never see the biter—before or after. Your slap is automatic—fast and accurate. After all you have other matters to think about, and a fly or mosquito bite is not a new experience to a fisherman by a long shot. Numbers two and three coming up in quick succession though cause you to look down at the back of your hand. What? Those little things packing a wallop like that? Ouch! This one was on the head, right where you thought the thatch was thickest. Then you get the idea—these little sons of brotherhood mean business.

Other people before you have been jabbed into an awareness of the punkies existence. The Maine Indians knew them and gave them the descriptive name of "No-see-ums." Along the southern Atlantic coastal regions their dreaded swarms are referred to as sandflies—a name that is shared with several other flies. The punkies are widely known also as biting midges.

If it were not for her bite (for only female punkies bite), the punkie would pass almost entirely unnoticed by the human race. Being only .04 of an inch in length, the punkie could pass easily and comfortably through the eye of a needle. She is the runt of a villainous crew of mosquitoes and flies that seem to have been designed for the particular purpose of making life miserable for all outdoor people in general and fishermen in particular. Before having a look at punkie habits in detail, let us take a glance, for the sake of comparison and contrast, at some of the activities of two others of this blood-thirsty company—the black fly and the deer fly.

The black fly, sometimes known as the buffalo gnat and turkey gnat, breeds in running water. Most of the species prefer cold fast-flowing streams. As it so often swarms in large numbers in the vicinity of streams, fishermen know the black fly only too well. This fly is frequently confused with the punkie, but even though the black fly is small in her own right—usually less than $\frac{1}{8}$ of an inch in length—she is still five times the size of the average punkie. As in the case of punkies, only the female black fly can bite to obtain blood. Not all black flies feed on humans, but people who have had experience with the biting species of black flies concede that these are the worst biting insects of the outdoors. Even the scientific names of the black flies on occasion pay tribute to their ferocity. Two American species have carried the names of *irritatum* and *molestum*, and an African black fly with a particularly vicious bite has been named *damnosum*. Although the bite of the black fly is not immediately painful, the puncture continues to bleed freely for some time after the insect has finished its meal. In a short time the bites become increasingly itchy and swollen—the irritation lasting for several days. The venom affects the glands about the ears and neck so mastoiditis-like symptoms may be produced.

The black flies are persistent biters, attacking the face and neck especially;

but they are willing to bite the arms, or any other part of the body that they can reach. They will squeeze under clothing or (like the punkies) into the hair to bite. Their bodies are so strong that they can crawl to and feed in places where a mosquito or punkie would be crushed.

Their numbers, persistence, and venomous bites have made the black flies a scourge not only to sportsmen and explorers, but also to livestock. In the northern states and Canada, outdoor activity is almost impossible where the flies are swarming; in the Mississippi valley they have caused heavy losses to turkeys and mules.

The well known Adirondack black fly is a bane to fishermen in May and June. This species is replaced later in the season by a less vicious black fly having white-marked front legs; consequently the guides there have a saying that when the black flies put on their white stockings the worst is over.

Anyone who has fished along woodland streams is familiar with the buzzing dive-bombing technique of the deerfly. Usually there are only one to three of these pests hanging around at the same time. Sooner or later you can capture these by making some swift passes over your head in one-two-three fashion with your cupped hand (remember how you caught flies when you were a kid?). Don't be surprised though if a brother fisherman comes over to see if the sun is beginning to get you.

The head seems to be the favorite target for these woodland deer flies. If you are in a boat on a pond or lake, you will probably be annoyed by numbers of dark-colored deer flies that show a preference for ankles and leg. As almost everyone has discovered, the deer fly bite is acutely and immediately painful. On some people particularly sensitive to the venom, the bites become super-sized lumps that burn and itch painfully.

The bite of the punkie, while sharp, does not usually develop the painful
(Turn to Page 26)

There is no reason for the guilty look on this frog as he poses beside his legal trout.



HONEST FROG makes

The bullfrog with the tail of the trout just one impossible gulp away.

LEGAL

CATCH

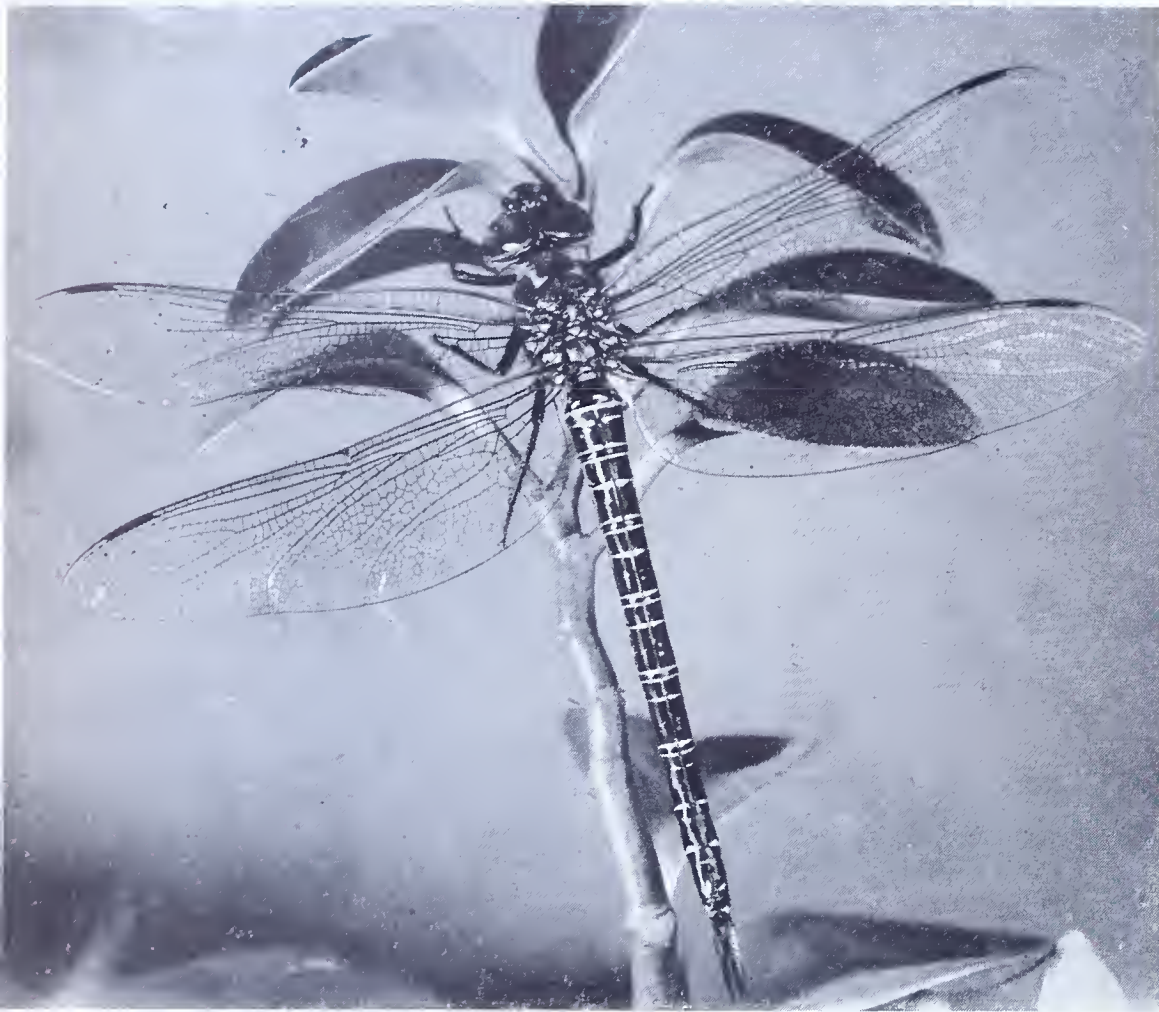
By ARTHUR D. BRADFORD,
Pathologist

*Pennsylvania Fish
Commission*

Fish wardens in Pennsylvania often arrest violators for catching undersize fish, but there was no reason to "pick up" the frog pictured above because *he* obeyed the law. His catch consisted of a seven and one-half inch brook trout.

He was picked up, however, because of the rarity of the occasion. He turned the tables on the fish this time. Instead of the fish eating him, he ate the fish—or tried to. It wasn't his fault that his stomach cavity was too small to take the whole fish, and that the tell-tale tail protruded from his mouth to make possible the picture story portrayed above.





This curious dragonfly often zooms into open windows (9 out of 10 specimens in the author's collection were captured indoors) *Epiaeschna heros* Fabricus.

I'LL WAGER I haven't a reader who has failed to wonder at that most graceful of all insects, the dragonfly. Perhaps you call it a darning needle, a snake-feeder, a mosquito hawk, a spindle, a snake doctor, or any of a dozen or more names that are used in different parts of the United States. Visit any forest stream or permanent pond on a sunny day from March to October and you will be rewarded by the sight of these splendid insects tirelessly gliding or holding themselves motionless in the air on rapidly beating, intricately-veined wings. In some species the wings are transparent; in others, elaborately spotted or banded with black, red, or brown markings. The huge compound eyes, the well-developed mouth-parts, the long spiny legs, and the slender, many-jointed abdomen make this order of insects, *Odonata*, unique.

But when someone, someday, writes a "Mythology of Insects" and includes all the myths that excited, but unscientific folks, have invented about the 6-legged animals, there will be one fat chapter on dragonflies. In my jaunts around North America collecting these insects, I have heard yarns aplenty that are based on absolutely nothing but the most active imagination. Many are the result of just plain adult orneryness . . . trying to scare Junior into being good, for if he lies, swears,



The aquatic stage (often called *naaids*) *Anax junius* Drury.

The largest and smallest of the *Odonata* of the United—(left) *Anax walsinghami* McLachlan; (right) *Ischnura denticollis* Burmeister.



Dragonfly

Fancies and Facts

By CARSTEN AHRENS

or steals, a devil's darning needle will come at night and sew up his nostrils, eyes, or ears . . . even his mouth. The commonest question I'm asked by people who see me handling a live dragonfly is "Don't they sting?" Everywhere people have a notion that the long slender abdomen is armed with a malevolent stinger that will bring swamp fever, or boils, or running sores, or even death. No dragonfly can sting. It may nip at you with its chitinous jaws if you hold it in your hand, captive, but no dragonfly will seek you out to bite you. At least a half dozen people from Alaska to Florida have seen this strange sight: each has beheld a long line of snake-feeders, loaded down with food and waiting in line to bring comfort and refreshments to a wounded snake. In one case the queue of dragonflies extended as far as the eye could reach! In some places they are regarded as omens, sometimes good and sometimes bad. In others, they are regarded as signs of early summer, long falls, or the time for planting peas.

So much for fancies. Now let's consider some facts about this ace of fliers

among the insects. Not all of the life cycle is spent in flight, for only the adult is aerial. The eggs are laid in or close to water. The eggs of *Archilestes grandis*, a Western species which oddly enough has been netted in large numbers along a tiny stream near McKeesport, Pennsylvania, are placed by the female in the live wood of willow and elderberry that overhang the water. But many dragonflies place their eggs in partially submerged, waterlogged timbers or in the stems of water vegetation, just at or slightly below the surface. Another large group simply fly back and forth over the water and now and then wash the eggs away by striking the surface with the tip of the abdomen.

The ugly, voracious chap that hatches from such an egg looks something like a spider. Weeks, months, even years may pass, depending on the species, the climate, the food supply, before the young dragonfly crawls from the water and clings to a reed that waves above the surface. Then the skin slits over the back and a beauty forces himself through, slowly spreads his drying, gleaming wings in

the sun, and leaves his former exoskeleton clinging to the reed.

The newly emerged insect is especially helpless in this stage of his life cycle. When conditions are favorable, great numbers emerge together (usually early in the morning) to the delight of the birds. Several summers ago near Harrisburg I found large flocks of purple grackles thronging the edge of a swampy area, breakfasting on the tender forms that had crawled fresh from the water into their flashing beaks. However, large numbers escape their natural enemies, and frequently the reeds at the edge of a body of water will be heavy with the cast skins of their aquatic forms.

As orders of insects go, the dragonfly order is a small one. There are about 400 species in the United States. As far as I know, there has never been published a complete checklist of the dragonflies of Pennsylvania, but when one is, there may be well over 100 species for our state. A number of states have dragonfly checklists; Connecticut, Florida, and Illinois have handbooks. Pennsylvania should have one too.

Dragonflies differ greatly from other insects in their food habits. Most insects live on the leaves or the sap of plants, or from the nectar of their blossoms. The adult dragonfly is entirely insectivorous. Along a stream near Ohiopyle I found quite a group of

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Members of the genus *Aeschna*, the Blue Darners.



Dragon fly—left.
Damselfly—right.
Naaid—below.



Photo by Allan D. Cruickshank from National Audubon Society.

GHOST BIRDS

of the marsh

By JOHN K. TERRES

Managing Editor, Audubon Magazine, National Audubon Society

White "cranes" are no longer a rare sight along Pennsylvania streams and pond banks. Almost extinct in 1900, the beautiful egrets of our southern states are coming back.

IT WAS many years ago in a southern New Jersey village that I first heard rumors about a "white crane." At that time, I was a boy living not far from the pine barrens, a region of dark cedar swamps, lonely pine forests, and wild river marshes. Local fishermen described the bird with awe in their voices.

"Tall as a man," they said. "Look for it along the creek between Smith's Pond and the Davis Farm."

All that summer I fished the creek

every day for yellow perch, sunfish, catfish and eels. Although I strained my eyes for a glimpse of the big "white crane," I never saw it. Only a few fishermen *had* seen it, and some of our townspeople thought these fellows had been "seeing things." After a while, the white crane became to most of our villagers a "ghost bird," and like the Jersey Devil, a myth that is forgotten until some incident brings it to life again.

Years passed and my interest in

birds deepened, but I saw no white "cranes" to reawaken that boyhood story. Then, early in the 1930's, I heard that the white egrets of our southern states had been seen in parts of Pennsylvania and New Jersey.

One day in August 1933, as I drove along the causeway over Pymatuning Swamp near Hartstown, Pennsylvania, I saw a flash of white far out across the marsh. Quickly I parked my car, got out and stood on the running board to get a higher point of view. In the open swamp not more than 100 yards away, I saw a big white bird that seemed "tall as a man!" Here, at last, I was looking at a "white crane." Possibly it was one of the descendants of the mysterious bird that I had tried so hard to see during that boyhood summer long ago.

The bird stood still, resembling a white statue rising out of the marsh. When I looked at it through my field glasses, I saw its snow-white feathers glisten in the sunlight. It held its head and long, slender neck high, with its yellow, sharp-pointed beak aimed straight ahead. Suddenly it raised its wings, darted its head downward, and brought up a small frog in the tip of its beak. With quick jerks of its head it worked the frog back into its mouth and gulped it down.

Since that day I have seen many of these almost four-foot-tall American egrets* along Pennsylvania streams. After the nesting season is over in the South both the adults and young birds

Now familiar on the Pennsylvania waterscape the American Egret was once threatened by extinction.

—Photo by Allan D. Cruickshank from National Audubon Society





◀ Young of the Snowy Egret are scrawny and awkward in appearance.

▼ These magnificent birds once furnished plumes for milady's millinery until conservation measures halted slaughter, which almost threatened their extinction. They are now reported to be coming back in numbers once again on the American scene.

—Photos by Allan D. Cruickshank from National Audubon Society.

spread out over the northern United States and into Canada, before returning south for the winter. From early July until September you are likely to find them, not only at Pymatuning, but along the Susquehanna River. An excellent place to see them is on Safe Harbor Flats, those islands in Lake Clark, opposite Long Level and Washington Boro. Dr. Harold Wood of Harrisburg told me that the Conodoguinet Creek opposite Harrisburg, is a stream favored by egrets every summer. I have seen them frequently along the Schuylkill River near Port Kennedy, and on Perkiomen Creek.

Besides the big white American egret, with its yellow bill and black legs and feet, you may see its rarer and smaller cousin, the snowy egret. This is a small white heron standing about 18 inches high. Although it, too, has black legs like the larger American egret, it has yellow feet for which character it has been christened "the heron with the golden slippers." The young birds of the little blue heron also wear white feathers, but only during their first year. They are about the size of the snowy egret, but their legs are greenish-yellow and their white wings have a slight tinge of slate on their tips.

What is the story in back of this slow but gradual invasion of our northern states by these white herons? One hundred years ago these birds nested abundantly as far north as New Jer-

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* This bird is an egret, or heron, and not a crane. The only white American crane, a bird about 5 feet tall, is the whooping crane which is almost extinct and migrates each year between Texas and western Canada. There is little chance of seeing one of these birds in the eastern United States. Cranes fly with their necks extended, herons "tuck in" their necks on their backs while flying.





A good stretch of Bass-Bug water on the Lower Loyalsock.

WE ATTENDED a wedding the other day—one of those June affairs which invariably are scheduled for blistering hot days. We sweltered our way through the ceremony and then drove to the reception where, by great good fortune, a friend and I found two comfortable chairs on the corner of a veranda where a breeze was blowing. We parked ourselves in comparative comfort and, he being a fisherman, fell to talking of the coming bass season. Eventually the talk swung around to bass bugs and bass fly rods.

"Sure I use 'em," he said. "Best way in the world to catch bass at night. We paddle along quietly, maybe thirty-fourty feet out, and cast in toward shore. Lots of fun."

"Don't you fish bass bugs in the daytime?" I inquired.

"Nope. Live bait. Bugs are not much good in the daylight. After dark is the time to fish bugs."

I have encountered similar ideas

about bass bugs a great many times since I moved back to my old home in central Pennsylvania in 1940. Men whom I know to be good fishermen have told me in all seriousness that such-and-such a river is "a live-bait stream," and that it would be futile indeed to fish bass bugs in its waters except, possibly, at night.

There was one man in particular, an excellent angler who ties his own flies (and ties them well) and makes his own bass bugs. When I told him about using bugs in the daylight hours, he laughed at me.

"You come over to my camp on the North Branch," he said. "I'll row the boat; you do the fishing. I'd like to see some of this daylight bass-bug fishing."

I brought home six bass from that trip. The smallest was sixteen inches long and the largest an old buster of twenty-two inches which tipped the scales close to the five-pound mark—

all of them smallmouth. Needless to say, my friend is now a confirmed bass-bug fisherman, day or night.

During the past ten years I have seen a great many men fishing the shore lines with bass bugs. Now and then there would be a finished performer—a man who could cast well and who maintained a respectful distance from the fish—but most of them fished at distances of thirty or forty feet. Believe me, thirty or forty feet of line will not produce many big bass, particularly big smallmouth. Seeing this, year after year, I began to understand why most of the boys hereabouts fish bugs only at night. Then you can cast a short line and get results.

When we are bass-bug fishing, we try to stay at least sixty-five or seventy feet away from shore line, particularly when we are fishing for smallmouth. Big bass are wary fish. It has always been my opinion that if a big bass knows you are in his vicinity and fishing for him, your chances of getting him are mighty slim. For that reason we make little or no noise and handle as long a line as conditions and our tackle will permit. To be sure, you can take small bass with shorter casts but the big boys—the ones you really want to hook—must be treated with respect. They won't stand crowding.

YOU would think from all the bass bugs that are currently available at the tackle shops it would be a fairly simple matter to purchase usable bass bugs. Unfortunately, that is not the case. All too many of them are not well designed for the job. A bass bug, above all things, must cast well. If it has too much air resistance, it refuses to turn over well at the end of a long cast. If it is too heavy, it places too much strain on your rod, and if it is too light it will not float properly.

Once on the water, it must handle the way a good bug should. To be

BASS-BUG *fishing*

By JOHN ALDEN KNIGHT

effective, it should kick up a satisfactory disturbance on the surface. It should convey the impression to the bass that it is edible, suggesting a frog or some large insect which has fallen into the water. Moreover, it should pick up well from the surface. A bug that dives on the retrieve is quite apt to break a rod tip unless care is used. Bugs with concave faces "pop" well but they will dive when you try to pick them up with a long line.

Because of these many deficiencies in "store bugs," I find that it is more satisfactory to make my own bass bugs. This is sometimes an involved process but I honestly think it pays off, as you can get a bug that way which will do what you want it to do.

Some years ago, while we were vacationing in Vermont, we figured out a bass bug which would do what we wanted it to do. We called it The Mystery Bug, after Mystery Pond, just outside the city limits of Newport, Vermont. You will find herewith some sketches of The Mystery Bug, showing its dimensions and how to put it together.

For reasons best known to the bass, smallmouth seem to prefer rather small bugs while largemouth would rather have a whole mouthful. Thus we turn out our bugs accordingly when we are making bugs for largemouth, increasing the dimensions of The Mystery Bug head by 1/16" on all three measurements. The bucktail trim on the largemouth variety can be enlarged in proportion.

We used to go to quite a bit of trouble to paint the cork heads of our bass bugs in various colors. Then we learned that painting actually is wasted effort. The natural cork head will weigh less and will take just as many bass as the most elaborately painted job. Now I simply give the cork head a coat of spar varnish, for waterproofing, and let it go at that. I don't imagine that my bugs would sell readily in a sporting goods store, but I don't make them for sale and they do catch fish for me.

A great many fishermen make the mistake of moving along too fast when they are fishing bass bugs. To be sure, they cover more territory than the slow fishermen, but I don't think they catch as many fish. We keep the boat moving very, *very* slowly so that the angler has plenty of time. He can

cast his bug to a likely spot; he can wait until the splash rings have spread to a diameter of about six feet. Then, and not until then, does he begin to play the bug back toward him.

It is not always a good plan to make too much fuss with a bug when you play it on the surface. Sometimes merely the slightest motion does the trick better than a loud "pop." I used to have a guide down in New Jersey who had the right name for gentle motion. He was a fanatical bass fisherman himself and he fished out every cast with me, usually to verbal accompaniment. The monologue would go something like this:—

"There's a likely spot, over by that log. Put your bug just on the edge of the shadow. That's right. Now don't move it. Leave it sit. O.K. I guess he knows it's there. Now—wink it."

Other anglers have taken me to task many times over my suggestion that a bug should be fished sixty-five or seventy feet from the boat. They say that a bug can't be cast that far. Don't you believe it. It is not only possible to handle a bug at those distances but entirely practical. All you need for the job is a good sense of timing and the right tackle.

We use fly rods that are nine feet, six; nine feet, nine; and ten feet—big fly rods which have plenty of authority. In those lengths a rod must have slow action, distributed throughout its entire length. A fast rod of equal length and weight will wreck your casting hand in half an hour—at least, such a rod will wreck *my* hand. But

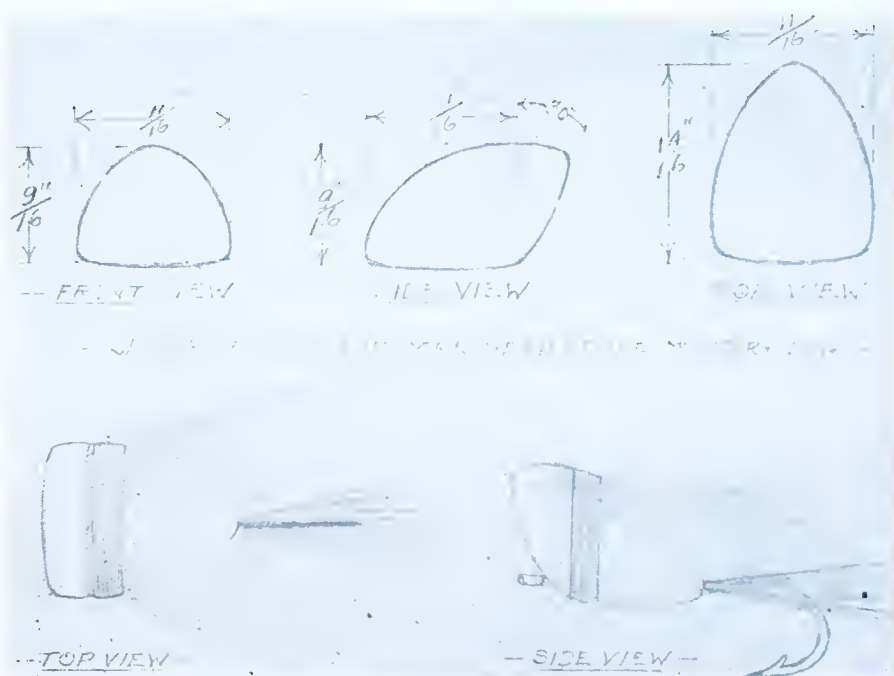
a slow rod will not only give you more applied power but it can be used all day long without ill effects.

On these rods we use three-diameter lines—"forward tapers." Most of my rods need a GAF nylon line to put them to work. Only one of them is light enough to permit the use of a GBF line. We prefer the nylon lines to those of braided silk because they float better than the silk lines, and that is important in bass-bug fishing.

Our reels are regular grilse reels, designed for salmon fishing. These are large enough to hold 120 feet of casting line and at least fifty yards of backing. This latter can be most any sort of soft braided line, such as a bait-casting line. The only requirement that is important is that it will stand a stronger pull than will your leader point. In this way you eliminate the risk of losing your entire rig on a large fish. You don't need backing very often but, believe me, when you do need it there is no substitute. Something like a parachute in an airplane; you don't need one of those very often, either.

For leaders we use nylon strands and tie our own. A tapered leader will cast better than a level or untapered one; it seems to turn over better at the end of a long cast. In our tackle kits we carry coils of nylon monofilament in 15 pound, 12 pound,

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The MYSTERY BUG

Anyone who has ever fished from a boat has sooner or later gotten around to trolling a line for bass and walleyes. It's an ancient angling art, sometimes exciting, often boring. Here are a few tricks of the trade.

VETERAN anglers often associate some of their most pleasant fishing moments with old Blearyeye, the pikeperch. For, it is when the sun is closing its eye for the night or blinking over the hill in the morning that this predator of the deep water is most apt to become interested in a trolled lure.

It is at the opening and closing of day when the elements are kindest to the fisherman. It is then, too, that Nature puts on a show of beauty to atone for any mistakes she might have made when the sun was high or for any mistakes she might be contemplating.

Next to still fishing, trolling is the laziest form of angling. But, it is also one of the most satisfying forms of recreation. For the angler isn't always after exercise; many times he is after peace and quiet, escape from the cares of the world.

The nasty tempered walleye is just the fish to inject the right amount of clean excitement into the peaceful pastime of trolling. His smashing attack or gentle attempt at thievery from deep below the boat frequently forewarns of a battle well worth waiting for. And, his performance is usually a stimulating beginning of a new day or a pleasant finale to one just lived.

The pikeperch is probably the most misnamed and misunderstood of our fishes. You practically never hear him referred to by his right name, walleye. But, when you hear him called Susquehanna salmon, you know that he has rightfully become a native of the Keystone State.

Other names are: golden pike, dore, jack, jack salmon, walleyed pickerel, glassyeye, blue pike, jack, jackfish, sauger and yellow bass. None of these names are a good clue to the real identity of the fish since he is actually a member of the perch family. Even the name pikeperch is misleading, and most lean toward the name walleye to correctly describe and identify this needletoothed and temperamental deep water denizen.

Originally found in lakes and streams deep enough to suit him from the Mississippi Valley and Great Lakes Basin, north to Minnesota, and east to lakes and streams from Eastern Canada, down through the cool water states, the walleye has been introduced into

most states except those of the extreme West. Although he may be taken on everything from plugs to flies, on the surface and deep beneath the surface, the favorite and most popular means of taking Old Blearyeye in our book is by trolling.

His milky eyes do not take kindly to bring sunlight, and his feeding is usually done from the time shadows darken the depths until the sun re-enters his deep strongholds. The only other times that the walleyes generally hit well is on dark, cloudy days. And, even then lures must be fished deep along the gravel bottoms and rock ledges where he hides from the sun.

Probably the most popular, and certainly one of the most effective trolling lures for walleyes, is the old reliable June-bug spinner and nightcrawler combination. Frequently effective as a substitute for the nightcrawler is pork rind.

But, whatever the lure used, there is one primary rule in trolling for walleyes . . . troll slowly and keep your lure deep. Unless you are occasionally banging the bottom, you are not fishing properly for walleyes during daylight hours.

Your lead weights, or sinkers, should be attached ahead of the lure. If fishing relatively shallow water, or still water, where light weights can be used, they can be fastened right on the main line for normal fishing areas. Of course, if the bottom is such that you become snagged too frequently, you run the risk of losing both weight and lure. However, in all cases where a fairly heavy sinker is needed, I recommend attaching it to the main line by means of a drop loop of inferior line. Obviously this will save you lures since the poorer line will break more quickly than your standard trolling line. Sinkers are always cheaper than artificial lures.

A line of 15-pound test should be sufficient in most cases although some may prefer heavier test.

Although red is usually my preference in choosing lures, I have found silver or copper colored spinners equally effective in trolling for walleyes. I think the speed at which the

By KEITH C. SCHUYLER



lure is presented to the fish is in this case more important than color. The walleye seems reluctant to leave the dark safety of the bottom for long while chasing after doubtful appearing lures. If he is not especially hungry, he may give up the chase if he has to travel too far while deciding whether to take a chance on that peculiar looking meal.

Of course, in the darker hours, the fish begin to work up toward the surface and over the shallow shoals. Even then, however, best results will be obtained if you keep the speed of your lure to a minimum.

When you hear fishermen tell of trolling for long distances without results and then suddenly connecting as they turn the boat, I believe that the answer lies in the speed of the lure. Obviously, the trolled rig is slowed considerably as the boat makes a turn.

Any walleye fisherman of long experience will tell you that Old Bleary-eye likes company. Usually, where you find one fish, you will find a school of them. By working over the same spot for a time, you can frequently pick up several fish until you lose the spot or the school moves on.

I make it a point to mark my position on the lake or river by lining up some object on the shore as soon as I get a good strike or catch a fish.

Choice of rods to use for trolling is governed by the water in which you must fish. Where heavy weight is necessary to keep the rig on the bottom, you take a chance of ruining a good fly rod or causing it to take a permanent set. In such cases, a casting rod works best.

However, where the depths are such that a light sinker can be utilized, I prefer the fly rod for the additional sport that is offered. Too, if you are rowing the boat yourself, the fish will sometimes feel the tension of the stiffer casting rod and release the bait before you can grab the pole. This is especially true if the fish are hitting lightly or striking short.

But with the fly rod, the gentle tension will allow the rod to bend easily to warn of a strike and give you opportunity to drop the oars and grab your equipment. Chief disadvantage of the fly rod is in setting the hook. Since a large, long shank hook is preferable, it takes a good jolt to sink the barb into the tough jaw of a walleye. And, when you consider that the world's record walleye was 22¼ pounds, you might get into trouble with a light fly rod.



A thorough knowledge of the bottom, speed of boat, lure and weight plus patience are major points in trolling.

Since you do troll deeply, you will frequently get hung up on rocks. Here again is a disadvantage in using a fly rod since there is a greater risk to tackle. The natural tendency is to heave on the rod the moment the tip bends to indicate a strike. If the hook or sinker is caught solidly on a stone ledge rather than in the jaw of a fish, it can be an expensive "strike."

Despite these hazards, I still prefer the fly rod when it can be used with reasonable safety.

Use of an outboard in trolling is again a matter of choice. I do not think a motor is in any way detrimental to your fishing from the standpoint of scaring the fish, but the speed at which you troll is the main consideration.

Use of a trolling plate will enable you to slow the boat sufficiently with some motors. But, unless you can trim your speed down to a slow walk, I'd stick to the oars. The motor is a definite assist if it can be used since you can steer with one hand and hold your rod in the other. Of course, when you get hung up on the bottom, it is a toss-up which is the more convenient to use in freeing the lure . . . oars or motor.

When fishing in Pennsylvania, it must be borne in mind that you are permitted to use a motor for trolling only on the rivers, Conneaut Lake, Wallenpaupack Lake and parts of Pymatuning Lake.

We have been considering the spinner combination as the best trolling lure for walleyes. When fishing dur-

ing daylight hours, not sunlight hours, I never use anything else. Size of spinner or number of blades is up to the individual choice. Some of my best catches of walleyes have been made on a rig with a double spinner and nightcrawler combination on which the actual blades were no bigger than a fingernail.

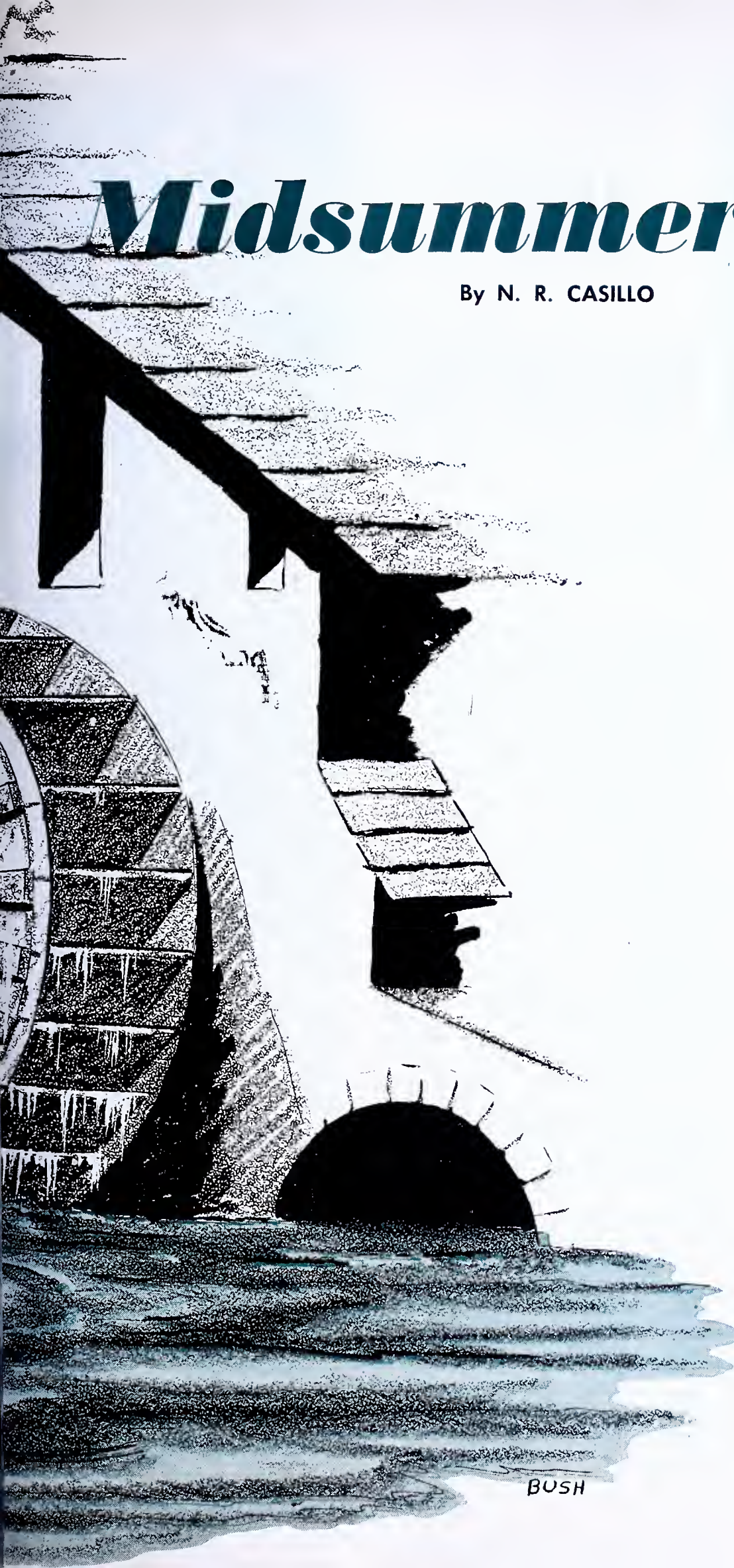
In all cases, however, it is best to use a wire leader. The teeth of the walleye are probably sharper than those of any of our fresh water fishes. When taking a trolled lure, the fish will usually strike from behind and take the entire lure in its mouth. This brings the teeth sometimes above the spinner in the case of a large fish, and only wire is safe against those sharp teeth.

Although the walleye is capable of delivering one of the most jolting strikes of any fish in its class, it sometimes mouths the bait with extreme tenderness. Short strikes result. This handicap can often be overcome by shortening the bait or by adding another hook.

I recall one particular instance while fishing with a spinner-feather combination when I got repeated strikes but no fish. The strikes were very light, and I strongly suspected walleyes. Only one hook was hidden in the feather, so I simply slipped the eye of an additional hook over the barb of the original hook. On the very next strike I hooked my wall-eye . . . on the second hook.

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Midsummer Idyll

By N. R. CASILLO

DID you ever wonder how it happened that the lover found his village queen down by the old millstream. Was she fishing? And, if not, why not? On the other hand, she herself might have cryptically and coyly admitted that she was fishing; naturally, not divulging the identity of her quarry.

Back in my home town the local millpond was a favorite hangout for some of the town maidens, the reason being that many of the local Romeos kept their canoes in the several houses built for that purpose on the little clump of islets in the middle of the pond. Canoes in those days made up for the dearth of cars.

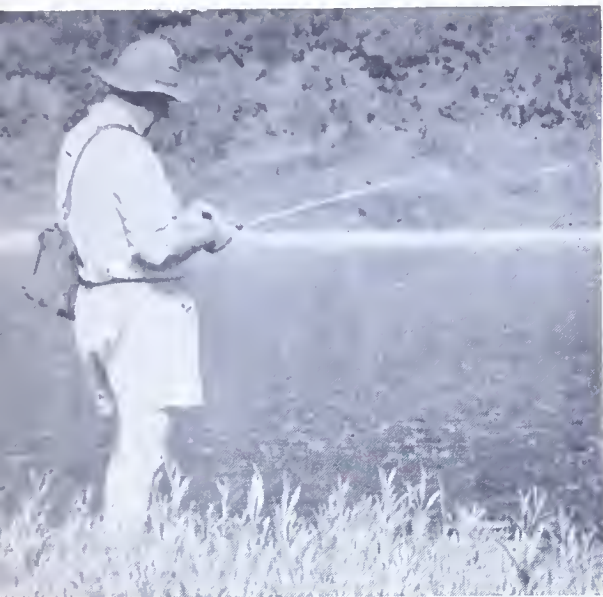
Sadie Seaver, Babs Eveland and Thera Snapp were the best looking anglerettes you ever saw; regular habitues of the Pughole as the millpond was affectionately called, because they were always sure of a canoe ride. We younger boys who frequented the Pughole for purely piscatory purposes wistfully hoped that we would some day have girls as pretty and as addicted to the gentle art as the trio we so often encountered. But why they were attracted to those nonfishing shieks (the Rudolf Valentino influence) was more than we could fathom.

Long before my time, as a social center a millpond together with its attendant grist mill ranked almost as high as the church. Practically every community activity gyrated about the mill. The miller was often the wealthiest and most influential citizen in the community; a powerful politician about whom people gathered. Yes, in days long ago such places exerted a powerful social, political and cultural influence. One could get the latest gossip and scandal or participate in the most learned dissertations.

Later on time was divided between the mill and the general store, the latter developing as a community need.

BUSH

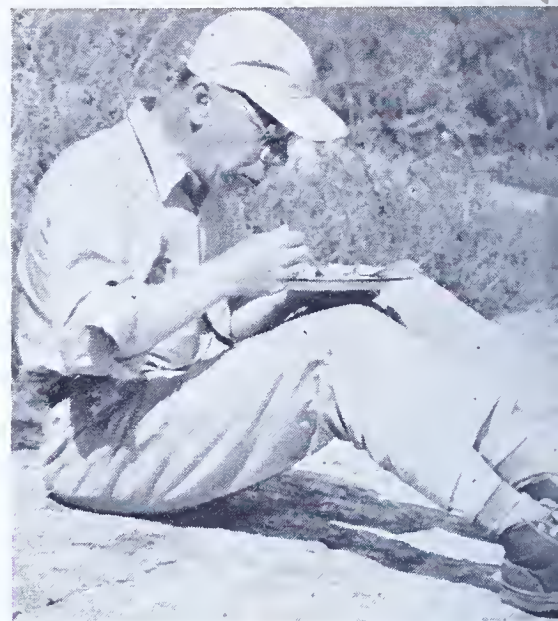
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Shorts make a good warm weather fishing costume. If he begins to feel the heat, this chap can walk out into the river and cool off.

WET WADING

By DICK FORTNEY



Here's a typical wet wading costume. A peaked cap, to shade the face; shirt, trousers, and wading shoes cushioned with woolen sox.

THEY tell the story of an ancient but tough retired woodsman who lived in the village of Muncy, in Lycoming County. All winter long the shooting pains of rheumatism raced through his 80-year-old legs. At times he could scarcely crawl out of bed. And as he suffered he kept muttering to his family.

"Just wait until the danged trout season opens. I'll get rid of this misery inside of the first week."

It wasn't the sport of fishing, nor the pleasure of eating freshly caught trout, that he regarded as a cure for rheumatism.

It was the chance he had to wade the freezing waters of his favorite trout streams—soaking his gnarled legs and feet in the water while exercising to keep his body warm.

The old-timer didn't wear boots. He wanted nothing water-proof between the brook and his legs.

The average fisherman of this generation would be dead of pneumonia a week after he tried such a stunt—but there is a time when wet wading is sensible and pleasant. It is this season of the year, when the air and sun are hot and even the water is tepid.

As a matter of fact, wet wading is only half of it. July and August are months when the smart angler strips off a lot of the burdens of tackle and clothing, enjoys the ability to travel lightly and freely.

One of the most pleasant fishing experiences I can recall occurred one broiling hot August day a couple of years ago on the north branch of the Susquehanna River near Ulster. I was

the guest of a group of friends who had rented a river-side cabin for a couple of weeks. The weather had been so hot and dry that the fishing was poor. Most of my friends had been confining their angling to the time between sunset and dark.

I had only one day to spend in the camp, so I persuaded one of the party, Sam Keyser, to get up early and do some fishing with me. Sam agreed.

We knew the day would be hot, so we wore only shirts, trousers, woolen socks, and wading shoes when we left the camp. Each of us had a stringer, in event we caught a fish we wished to keep. Our tackle was confined to rods, reels, and lines, of course, and to a selection of flies and spinners carried in compact little kits supported high on our chests by shoulder straps.

The river was low, and we waded into it at a spot about a mile upstream from the camp. The water felt cool and refreshing as it soaked through our clothing, and as the hours passed neither of us was conscious of the brazen rays the sun poured down on us.

We found the fishing excellent. We soon discovered that the bass were concentrated in the deeper, rocky pockets of the river. Most of these spots were far from shore, but since we were not limited by the height of either boots or waders we were able to get within casting distance of all of them without difficulty.

The bass were striking viciously at spinners. Large rock bass which had schooled up in a couple of areas of that stretch of the river were feeding

on the surface took floating bugs and big, bushy flies.

By noon we had worked our way downstream to the cabin—and when we waded dripping out of the river we found the other members of the party lolling around the camp, complaining about the heat.

The clothing we wore that day—shirt, trousers, woolen socks to cushion the feet, and wading shoes—is an ideal combination for wet wading. Shirt and trousers are important, for it is unwise to expose the body in the direct rays of the sun for long periods during mid-summer. And of course when an angler is wet wading in a large stream there are few, if any, shady spots in which to rest.

Wading shoes are important too. They should have tops that fit snugly about the ankles, not only for the purpose of support but also to prevent pebbles and sand from getting down inside the shoes, irritating the feet.

The wading shoes may be of either leather or canvas, and if they have felt or other special soles they will give the angler a secure footing. In water where no slippery rocks are likely to be encountered, a pair of basketball shoes are ideal for wet wading.

Incidentally, the experienced wet wader carries an outfit of dry shoes and clothing in his car and discards his wet garments when the day's angling is finished. That's because a man in wet clothes can get pretty chilly even in mid-summer when evening comes, and besides it's more comfortable to travel in dry clothing.

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The Frustrated Catfish

By **N. R. CASILLO**

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AMBROSE was a big, bouncing three-pound catfish. And for a common bullhead catfish, three pounds is no mean avoirdupois, especially when a one-pounder is considered a prize catch by the run-of-the-mine bullhead fisherman.

Ambrose spent his days under a patch of lily pads or in the dimly lighted recesses of a cave under the bank, dreaming of the choice tidbits which most catfish encounter in the course of their nightly forages. Defunct crayfish, leeches, frogs, tadpoles and any ripe carrion which chanced to find its way into the water were not only acceptable, but greatly relished.

Next to fine food, Ambrose liked nothing better than a sound snooze, so toward the tailend of his nightly forages, he longed for his watery bed under the lily pads or for the master bedroom under the overhanging bank.

Life for Ambrose consisted of one pleasant cycle of food and sleep and sleeping and eating. It was a most luxurious mode of living and he appreciated it deeply. Well, that is, he appreciated it up to a certain point. There was something lacking that would have made his life truly idyllic. There were times when he felt strange stirrings which he could forget only by plunging into his eating and sleeping with greater gusto. Yes, as you may have guessed it, he had attained what the great Garbo has futilely been striving for all these years. Perhaps, she tried too hard. It was a cinch for Ambrose. All he did was to make a meal of any and all intruders.

However, intruders were not too plentiful. Now and again a sunfish or two would explore the forbidden kingdom, but to larger fishes the pool was inaccessible because it was all but shut off from the main river, a mere bead in the many comprising the watery string. And to make it still more impregnable it was fed by the

most diminutive of trickles. To anything larger than a four-inch sunny it was "out." Now, don't get the idea that Ambrose was discriminatory. He accepted four-inch perch or suckers or shiners or even catties just as readily; and a difference of an inch or two either way didn't matter much either. His copacious maw ably accommodated them all.

Well, despite his fat, wellrounded living, Ambrose found himself more or less moody and often actually morose, and since there were no piscatorial psychiatrists to consult, he tried to forget it all by plunging into a life of riotous living. A paunchiness about the midriff and a certain puffiness

under the eyes soon marked him as a profligate gastronome and gourmand.

One day, while ensconced in his cavern fastness, Ambrose was awakened from a sound and blissful sleep. He had been dreaming of a savory mess of well-aged nightcrawlers all tastefully and artistically garnished with great gobs of Limburger cheese. His mouth dreamily moved in anticipatory motions.

Following an appreciative sniff the catfish stirred excitedly. It wasn't a dream after all, for there before his very snout was the gastronomic masterpiece of which he had been dreaming. He essayed a mighty gulp and succeeded in inhaling hook, line and sinker as well as an alarming portion of the pool.

The fisherman on the bank surveyed his prize as he incredulously remarked, "Who'd ever thunk it? Ambrose still suspended by his stomach, looked the man in the eye and grunted his appreciation. At last he had seen life. "Yes, sir, a record." continued the man. "And in a hole hardly bigger than a wash tub."

MORAL FOR FISHERMEN: Never pass up even the most unpromising fishing hole.

MORAL FOR CATFISH: Don't be a sucker for your appetite.

Camping in the Poconos

There's a lake that I love in the heart of the highlands,
Ensilvered with birches and fragrant with pine,
Its bosom an Erin of emerald islands,
Its breezes a tonic like old Rhenish wine;
Cool, crystalline waters encupped in the mountains,
And fed, like man's spirit, by deep, hidden fountains—
Dream of this and much more as the Eden now mine.

Imagine yourself with some friend, idly blending
Your talk with his oars as your line swishes by;
Feel the thrill of your bamboo suddenly bending,
Hear the song of your reel as a bass strikes the fly;
And confess, when at last you have netted your beauty,
That never a triumph of pleasure or duty,
Since childhood, has kindled your ardor so high.

Then think of the peace that pervades our lone islands
When the campfire at evening brings rest to the rod;
When our spirits grow strong with strength of the highlands,
And we laugh at the frown of the world—or its nod.
We are one with the stars and we drink at their fountains,
As the night settles down on our tent and our mountains,
And leaves us alone with our thoughts and our God.

—Martin W. Witmer

IT ALL began when the pickerel of an eastern Pennsylvania stream refused all offers of bait.

The heat of the day was the kind that made you weary, a bit grouchy. So I took a long pull from a canteen, and nibbled with disinterest on a Lebanon bologna sandwich when I saw a dozen or so carp, the sizes of the best bass you ever saw mounted on a den-board, drifting up the river.

Recalling that carp like dough-bait, and feeling the gummy sandwich clinging to the roof of my mouth, I got an idea. I broke off two lumps of bread, rolled it by rubbing between my hands, and stuck the lumps on the hooks of a spare outfit I'd brought along.

The rod of this outfit was casting-size, but limber as a bullwhip; the line was twenty-pound test; and I had on a stout level leader ending with two number six hooks. I'd used the rig for bullheads a few nights previous. I tossed into the weedy, sluggish stream far above where I'd seen the carp and the line settled as lazily as the puffy clouds settled in that hot summer sky.

So I went on, eating and watching the fat shiner turning deep on my pickerel line, the shiner's silver sides flashing as a coin would flash against the sun. I watched five, maybe ten minutes. Then I heard a rod jumping and simultaneously, a reel screeching.

Sure enough, there was my carp line, straightening out.

Since, I've learned that carp, being very easily frightened fish, will spit out bait at feel of resistance, and that you must set the hook as soon as you see a steady draw on your line. But on this first hot day, the carp hooked himself. When I pulled I felt the heavy struggles of a good fish. I thought: Wish this was a pickerel . . .

Pickerel are swift, savage fighters, and I had nothing but scorn for the carp as he began his fight. It was a deep, if heavy, and slow fight—maybe like a big catfish. The carp moved upstream, the line dragging stiff against the current. Feeling almost bored about the proceedings, I decided to thumb the reel hard and turn him downstream. Then came my first surprise. I couldn't turn the carp. He kept on going, the line jumping from the reel, the rod bucking.

And when the carp did turn, he turned because it was *his* decision. He swam downstream, then across-stream, and again upstream. My interest climbed steadily, because I came to the slow but certain conclusion here was a fish I couldn't control prop-

Carp Capers

By JACK ANDERSON

Here's a carp story anglers with the doughballs will appreciate. A great majority of licensed fishermen in Pennsylvania angle for this elephant of the mud-bottomed streams. Though he's not great shakes as a tasty dish, he's as strong as an ox and as slippery as a greased hog.

erly. He wasn't a spectacular, leaping, zooming fighter, but he was strong as a bull.

A buddy, Johnny Jones, who had been fishing upstream, saw the battle and came beside me, eyes bright with excitement.

"Got a big one, don't you?"

I grinned. "Doggoned big carp, that's all."

"Oh, heck. Haul him in and I'll net him."

"Haul him in? The son-of-a-gun won't come in."

I didn't know it then, but the carp had no intention of coming in, for some time. He was tireless. I could have creeled my limit of fair-sized pickerel during the time I battled this determined carp.

Finally, I reeled in, the carp moving shoreward, appearing as a great dark shadow in the water. Johnny Jones got down on one knee with the large-mouthed net. The carp saw the net and was off on another long run. He made three more runs before Johnny Jones pulled him, still twisting, his small mouth working hard, from the stream.

That hot summer afternoon gave me a new slant on one of the despised members of the fish family. As a kid, I saw men sitting on rocks and logs down along Perkiomen Creek, waiting long hours between bites, and remember that bass and trout fishermen viewed these fishermen with distaste.

"Carp fishermen," I was told. "A man's got to be sore at his wife to enjoy carp fishing. You just throw in your line anywhere and wait for luck to send one of the big hog-fish your way." And they said more, very uncomplimentary things, about carp.

Just as I, too, have spoken unkindly of the fish. We've accused them of roiling the rivers and lakes. We've

tagged them as spawn-eaters. We've called them sluggards.

So you know I was amazed when, after I'd landed that first, twelve-pound carp, I gave some study to the fish, and learned facts such as these:

Some of the best fish authorities in America say that there is no proof that carp eat the spawn of fishes. Carp are said to be the cowards of our waters, and even a bluegill on its nest could chase one of the big fish. Carp are reputedly, peaceful fish.

Because of their rooting habits, carp are beneficial in ridding streams and lakes of too many weeds.

In the year 1946 the commercial value of carp in the United States was \$373,000.

I am not a carp-lover. I do not like their muddy taste. Nevertheless, these are the opinions of some experts for what they are worth.

As for the sporting qualities of carp—

Well, Johnny Jones and I decided we'd learn more about this. So we began fishing carp on light tackle. And we learned more amazing things about the fish.

Johnny Jones and I would have passed for trout fishermen as we crossed the field, plodding along in hip-boots, creels strapped fast to our backs, fly rods held lightly in our hands. The sun was still high when we arrived at the river.

"I'm going to try out there," and I pointed to the end of a narrow, shallow riffle, at the head of a deep pool where water ran smoothly, and where I reasoned fish would swim to gather the first bits of food to strike the pool.

"Good. I'll fish above the riffle."

Soon as I was alone, listening as I

(Turn to Page 32)

DID YOU ever see an expert caster in action? If so, you know that it is a beautiful thing to watch—and awfully hard to match. Such skill comes only with much practice combined with the use of perfectly matched tackle. One of the most important features of matched tackle is a rod of proper action. Without it not even the expert could do a creditable job. Let us examine this rather complicated question of rod action and see if we can arrive at some usable conclusions.

Simply put, rod action is the response of the rod to forces applied by the fisherman. The caster uses a weight and by applying force attempts to propel that weight to a desired spot. His success in doing so is determined, in large measure, by the manner in which his rod responds to the weight and motion he uses. Since casting should not be work, it is up to the fisherman to find the rod which will best suit him, the one which will respond satisfactorily with the least effort on his part.

No casting rod can be expected to perform satisfactorily with both heavy weights and light weights. The fellow who wants a rod which will cast both midget lures and musky lures is out of luck. The range of weights over which a rod will perform at its best is limited. That being so, let us set up some artificial, though practical, weight ranges and try to find a rod which will perform well in each of them, e.g. light or midget lures—one-fifth to three-eighths of an ounce; standard lures—one-half thru five-eighths of an ounce; heavy lures—three-quarters of an ounce upward.

A rod designed to cast the midget lures is a specialized tool. In order to comfortably cast such lures a long, rather flexible rod is necessary. By a long rod I mean one of at least six feet and by flexible I mean one which is limber over at least the upper half of its length. It should also be light in weight. There are pitfalls however. If the butt portions of the rod are too flexible it will be hard to hook fish on a moderately long line, will cast too high an arc, will not properly play a lure, and will lack the power to make long casts when they are needed. There is a very nice point of difference here which is almost impossible to explain. The best I can offer is to say that if the rod feels "sloppy," if it bends throughout its length when flexed easily without a plug then avoid it as you would avoid a plague. If, on the other hand, it has snap and life, particularly in the butt and lower middle portions, con-

sider it carefully. That is what is meant, or should be meant, by light action and there is all the difference in the world between light action and no action.

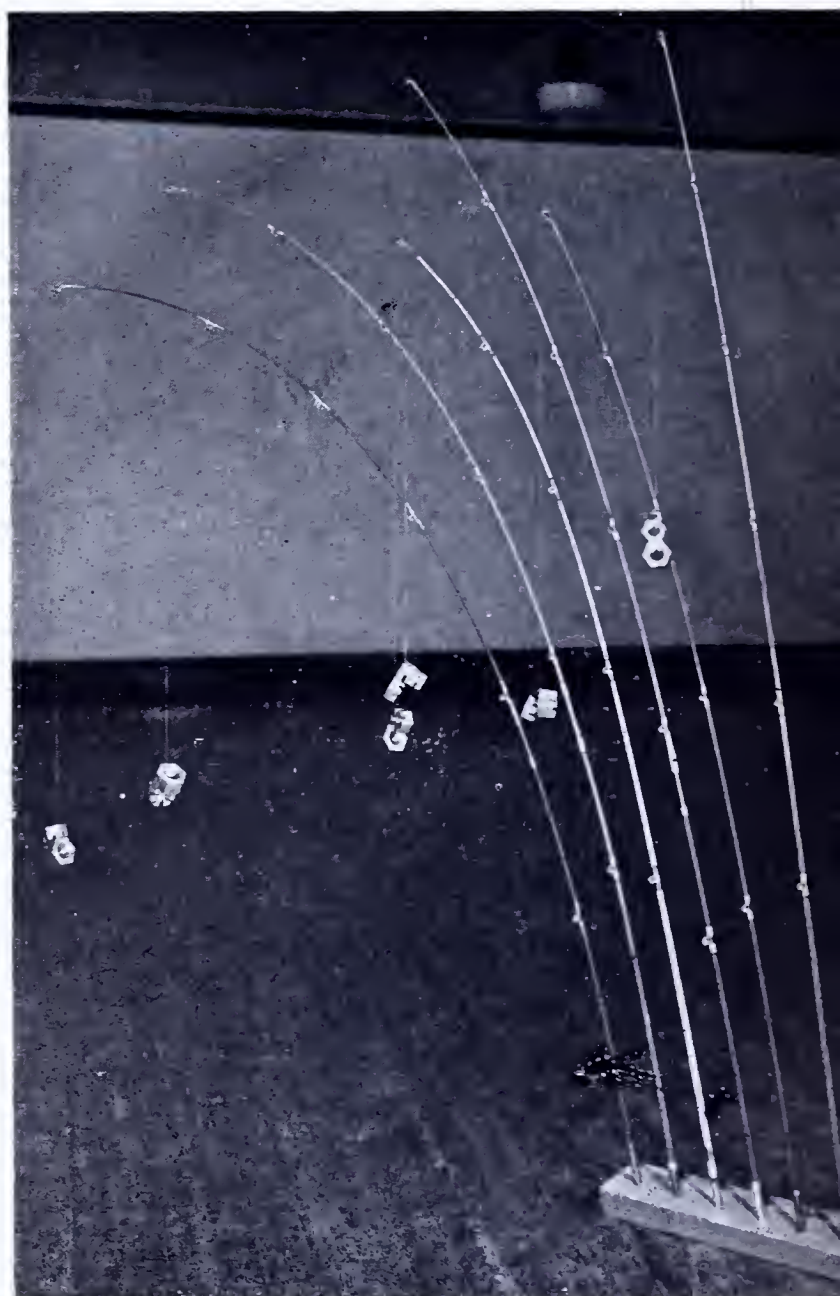
What will such a rod do well? It will cast with ease plugs weighing from one-fifth of an ounce up to and including those weighing three-eighths of an ounce. Furthermore it will cast them over greater distances than are really necessary in practical fishing. The length and flexibility of the rod will compensate for the lack of weight in the plug and make casting a real pleasure. Playing a fish on such a rod is a real thrill. Every small movement of the fish is telegraphed straight to the hand, giving the sensation of actually holding it in the finger tips. Surprisingly large fish can be handled with the light outfit. I have the feeling, but can't prove it, that the light outfit properly

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Casting Rod Action

By Lee Diehl

Rod action as shown by suspended weights. I used four ounce weights on each rod and arranged them from left to right in order of stiffness. The one on extreme right is a very stiff, heavy duty bamboo—all the rest are glass. The white rod is solid glass the rest tubular glass. Range in length is from 5'6" to 6'5". Second from left is nearly ideal light lure rod.



A LESSON FOR HERMAN

By KEEN BUSS,

Fishery Biologist, Pennsylvania Fish Commission

EVERY time Herman picks up a newspaper, magazine, or turns on the radio some new scientific invention is forced upon him. There is only one way to escape this plague and that is to go fishing—or so he tells his wife.

The fugitive from the atoms and antibodies throws his gear in the car and off to his favorite lake he goes. At last, he thinks to himself as he lands a pike, peace and solitude are his; no more irritation from scientific cranks.

But, alas, a villain enters the picture in the form of a fish warden who is taking a creel census for the Fish Commission.

The first question this invader of serenity asks is, "What kind of fish did you catch?"

Of course our friend meekly replies, "I only have one fourteen inch pike."

"A PIKE," roars the warden, "what do you mean a pike?" Is it a northern pike, redbfin pickerel, chain pickerel, grass pickerel, yellow pikeperch, muskellunge, gar or blue pike?"

To this the escapee from the home chores replies very, very weakly, "It is just a pike."

The warden's face changes from the color of a redbelly dace to that of a green sunfish. His features twist and contort while the face of the poor, oppressed Herman looks as white and pasty as a dead golden shiner that has mellowed in the hot July sun for a week.

Finally, poor Herman has collected his composure long enough to ask, "What difference does it make what I call this fish?"

Thoughts run through the warden's mind. He recalls the day, before he was a member of the force, he had made the horrible mistake of calling a black crappie a white crappie. Recollecting his own terrible mistake, the warden calms his frayed nerves and relates this story to the frightened Herman.

"Although the ichthyologist (one who deals with the classification of fishes) seems to have attached foreign names to the scientific nomenclature of

fishes, it is for a purpose. These names aren't in the English language but in a universal language understood the world over by biologists. Certainly, it is easily seen that you wouldn't expect all the names to be in common or slang English, or in French, or in any other single geographically confined language. What could be more fair than a universal language? What could be more simple than for men who speak different tongues to have this common understanding when they get together?

"Thus it is that a member of the *Salmonidae* family is universally understood to be a member of the salmon family by scientists in Russia, Ethiopia, Canada or any other country. There is no contradiction found anywhere in the world when *Salmonidae* are discussed.

"It is the same with a report that a fish warden sends in to the technicians at the laboratories. It is easily seen that if the word "pike" is used promiscuously, it would cause confusion with at least eight fishes. To combat this confusion the common and scientific names are established by the vote of the Committee on Common and Scientific Names of Fishes of the American Fisheries Society.

"The angler isn't expected to know the scientific names; that is usually reserved for the biologists. But if the angler would try to use common names as applied in publications such as state and national bulletins, much confusion would be eliminated when he angles in different waters of any state or country.

"This, basically, is why all of the men assigned to biological investigations are so interested in educating the fisherman to the value of proper names."

So our friend Herman goes to the sanctity of his own home much more enlightened, and presents his lonely wife with the pike. Excuse it, please. He presents her with a yellow pikeperch or *Stizostedium vitreum vitreum*.

Fishery Biologist Conducts Management Studies On Penna's Lake Erie Waters

Alfred Larsen, fishery biologist who is stationed at the Erie Hatchery and who is conducting management studies on Pennsylvania waters of Lake Erie, has made a number of interesting observations during the past several months.

Yellow pikeperch eggs received April 18, 1952, hatched May 16, 1952. This gave an incubation period of twenty-nine days at a mean water temperature of 43 degrees Fahrenheit. Most of the fry were planted in Lake Erie immediately after hatching. For experimental purposes, some were kept in an aquarium and it was found that the yolk-sac was absorbed in approximately seven days at a mean water temperature of 67 degrees Fahrenheit.

Whitefish eggs received December 8, 1951, hatched on March 29, 1952. This was an incubation period of 120 days at a mean water temperature of 34.5 degrees Fahrenheit.

Several hundred smelt fry which hatched on May 7, 1952, were placed in an aquarium immediately after hatching. In this case the yolk-sacs were absorbed by May 15, 1952—a period of eight days at a mean water temperature of 65 degrees Fahrenheit.

Commission Now Producing Own Sound Movies

The Pennsylvania Fish Commission's first sound movie is now on the road to completion. This represents the initial step in presenting to the public the activities of the Commission in sound movies. It was made possible by the recent purchase of a new magnetic tape sound projector. By using this type equipment the cost of producing sound movies has been greatly decreased over previous methods. Actually the money saved on a single movie, using the new method, represents the cost of a new projector.

The first sound film to be produced is on management for better fishing and was filmed by George H. Gordon, Fish Commission photographer, on a trout stream in Warren County. A number of the present silent films will also be dressed up with sound.

Penna. Federation Division Secretaries Workshop Held at Fisherman's Paradise

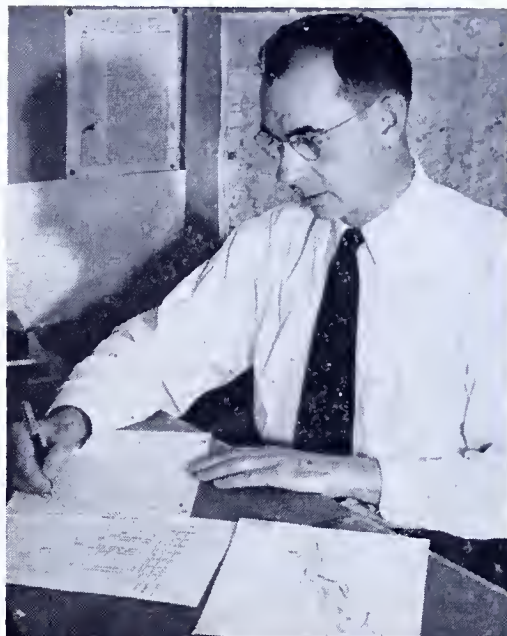
Division Secretaries of the Pennsylvania Federation of Sportsman's Clubs met at Fisherman's Paradise, Bellefonte on May 24th. Attending were: Raymond R. Rommelt, Central Division; Mrs. Ellen A. Dietrich, Southeastern Division; H. E. DuBroux, Northcentral; and Charles W. Stoddart, Jr., Southcentral. Federation President, S. Dale Furst outlined the importance of the work of the division secretaries, commented on the growing effectiveness of the work since persons of responsibility and intelligence were elected to respective offices.

Following the meeting, the Directors of the Federation met with the Pennsylvania Fish Commission at which time the Federation recommended that the warden organization of the Fish Commission be assigned to territories on the basis of water sheds and streams instead of by county lines. Mid-season trout stocking practices were discussed at length, pollution reports were made and vandalism and posting of streams placed on the agenda.

During the course of the discussions, the Easement Program of the Pennsylvania Fish Commission was examined. Dr. M. Graham Netting, Carnegie Museum, Pittsburgh was introduced who explained the actions of the Western Pennsylvania Conservancy.

Attending the sessions were from the Federation: S. Dale Furst, President; R. S. Cooper, Past President; Joseph H. Barkley, 1st Vice President; Ray Armstrong, 2nd Vice President and Charles H. Nefh, Secretary; H. M. B. Weicksel, Ralph Steinhart, Ray Rommelt, C. LeRoy Firestone, H. Arthur Fox, Steve Emanuel, Theodore Koehler, Oscar A. Becker, Robert C. Yake, Mrs. Ellen A. Dietrich, E. G. MacMurdy, Carl A. White, William L. Achtzehn, H. E. DuBroux, Merrill C. Merritts and Charles Stoddart, Jr. Fishing Commissioners attending were: Bernard S. Horne, President; Paul F. Bittenbender, Philip E. Angle, Louis S. Winner, William D. Burk, and Executive Director, Charles A. French. Executives from the Fish Commission included H. R. Stackhouse, Executive Secretary, C. Ross Buller, Chief Fish Culturist and W. W. Britton, Chief Enforcement Officer.

Appointed Director of New Research Station



Gordon L. Trembley.

C. A. French Retained As Executive Director of Penna. Fish Commission

At a meeting held recently at its offices in Harrisburg, the Pennsylvania Fish Commission retained Mr. C. A. French, Ellwood City, as its Executive Director. Re-elected were Hon. Bernard S. Horne, Pittsburgh, president; Paul E. Bittenbender, Wilkes-Barre, vice president. Other members of the Commission are Milton L. Peek, Radnor; William D. Burk, Melrose Park; Gen. A. H. Stackpole, Dauphin; Louis S. Winner, Lock Haven and Philip E. Angle, Sharon.

Gordon L. Trembley, Chief Aquatic Biologist, Pennsylvania Fish Commission has been appointed Director of Research of the new half-million dollar fisheries research station at Benner Spring, Centre County.

HISTORY OF FISH INTRODUCTIONS INTO PENNSYLVANIA

II

The Largemouth Bass

Following the introduction of the smallmouth bass into Pennsylvania in 1871, the sportsmen of the era became bass-conscious. For the next twenty-five years, large- and small-mouth bass were transplanted into waters all over the country. The enthusiasm mounted to such a peak that bass were exported to England and other foreign countries. It seemed as though bass fishing had been taken up by the anglers of the world.

During this time, the fishermen from Pennsylvania sought frantically for a new supply of bass. The nearest source of these fishes was Lake Erie which contained largemouth bass. To this source, men from Erie State Fish Hatchery were sent to seine bass from the lake. Also, to supplement this seining, bass (and it made no difference whether they were large- or small-mouth) were obtained by commercial fishermen.

The largemouth bass obtained in this manner formed the nucleus for the state-wide distribution of these fishes in Pennsylvania today.

KEEN BUSS, *Fishery Biologist*
Pennsylvania Fish Commission



BAIT FISH BONANZA (From Page 4)

mucky bottom. The pond was allowed to remain dry throughout the winter. The utilization of the water area was entirely for propagation in the summer months and not for holding purposes. A greater depth would be more desirable to hold the fish throughout the winter. It has been found that in this climate a maximum depth of six to eight feet will, under most conditions, prevent winterkill.

The results from the different methods of stocking, fertilization, feeding, and results of fish production in numbers and ponds are found in Table I.

The minnows can be harvested by various methods. The baited dropnet (often called umbrella net), seines and wire or glass traps are most often used. The type to be used depends upon the number of minnows desired and the condition of the bottom of the pond. A system should be developed which best fits the needs of the individual bait man.

Probably the greatest loss in small fishes results directly or indirectly from handling. The harvesting methods often result in the minnows being crushed in the seine, hurt through

careless handling, or dying from too many being confined in too small a space. Often the larger fish will thrash about and knock the scales from the smaller fish thus leaving them open to different types of infections. In hot weather, the soft minnows suffer a very heavy loss from handling. Live boxes placed in streams or lakes are often too shallow and only the warmer surface water is available to the fish. Wave action or strong currents may also be hardships on the little fishes. Deeper holding boxes usually provide cooler temperatures and usually have less water motion to harm the fish.

Transportation of the minnows is a problem that has to be arranged to satisfy the dealer's needs. Sudden temperature changes and overcrowding will result in high mortality. Bait can be hauled in various ways from tank trucks to milk cans. If the water is iced, the sudden temperature change when the minnows are put into warmer water is usually fatal. Constant experimentation will show the best methods to transport bait over the distance which is necessary to market them. Transportation of any kind of animals

is tricky business and minnows are no exception.

To operate a bait business in Pennsylvania, a permit is required; and it is necessary to adhere to other laws pertaining to the propagation, transportation and sale of bait fish. Be sure that you are familiar with these laws before embarking on your enterprise.

The problems contained in this article are but a few that will be encountered in the raising of bait fish. They are presented in a manner which may seem pessimistic to the layman, but the mail received at the Central Field Office shows that these problems arise with all who attempt to raise fish on a commercial basis. As noted before, the Pennsylvania Fish Commission does not discourage the artificial propagation of minnows. On the contrary, the Commission encourages bait raising to relieve the pressure on the forage fish on lakes, ponds and streams. However, the Fish Commission feels that by pointing out the facts and problems more people will be successful.

Anybody can raise a few saleable fish if the water area is large enough; but only those who have used their intelligence, foresight and experience have struck the bait fish bonanza!

THE PESKIE PUNKIE (From Page 8)

lumps and complications of the deer fly and black fly. Nor does she leave the bloody signature of the black fly—a fact that sometime may help you decide which one of these little pests is working on you. The after-effects of the punkies' bite are about on par with the bites of mosquitoes, the amount of swelling depending upon the sensitivity of the person getting bit. The bites of some of the western punkie species, however, leave a moist lesion that remains for several weeks.

While punkie swarms do not produce such heavy losses to stock as do some black fly outbreaks, the punkies' nuisance qualities nevertheless have resulted in some economic loss. Resort areas, particularly in the southern Atlantic coastal areas, lose business during the punkies swarming season. It is claimed too that full development of these coastal sections has been retarded for decades because of the prevalence there of sandflies.

Not all of the punkie family feed on warm-blooded animals. Some species are known to suck the body-juices of

other insects, and may even attach themselves to the host's wing veins in order to feed. These wing-riding punkies display the family trait of bulldog persistence, because they apparently retain their hold and feed even while the larger insect is flying.

The young or larvae of the punkies are found in a number of different situations depending upon the species. Some larvae live in the sap that oozes from broken places in the bark of trees. Some live in the rain water that collects in hollow stumps. Others live in stagnant pools, and in the algae found in such pools. The so-called sandflies of the coastal regions are especially abundant at fresh water inlets, and at tidewater pools; larvae of these species live in decaying humus of the shaded areas at the edge of grass marshes.

The season when the adult punkies swarm varies, of course, according to the species. Their season, fortunately, is usually shorter than that of the black fly. Punkie swarms occur from mid to late summer. In the Adiron-

dacks, the biting species of back flies are out in May, June, and July.

Just as they each have their own distinctive bite, the black flies and punkies have each their own distinctive bite habits. Black flies bite viciously in open sunny areas on bright clear days. They never bite at night, and do not come indoors. The punkie is chiefly active in cloudy weather, although she bites readily in the shade



on sunny days. Her attacks are most troublesome between 4:00-11:00 pm., and between 6:00-10:00 am. Most punkies are strongly attracted to artificial light. Conventional untreated window screens and mosquito netting are no barrier to punkies as they easily pass through the mesh. Consequently, during the punkies' swarming time, lighted rooms are soon swarming with the pests unless the windows are kept closed or given extra protection.

Punkies may be kept from entering cabins and houses by using bolting cloth, sixty meshes to the inch, to screen windows. Or treating screens with 5% DDT in kerosene will keep out most punkies for several weeks. As punkies dislike drafts, sleepers may get some protection by keeping an electric fan running in the room.

Any of the more effective insect repellents—especially those developed during World War II—will give fair relief from punkies. Fortunately the punkie's small size puts her at a disadvantage in this case. She is held fast and quickly killed by oil films so small that they would hardly inconvenience mosquitoes and the larger of the biting flies. In a pinch, even gun oil will give some protection. For the relief of bites, household ammonia or borated vaseline has been recommended.

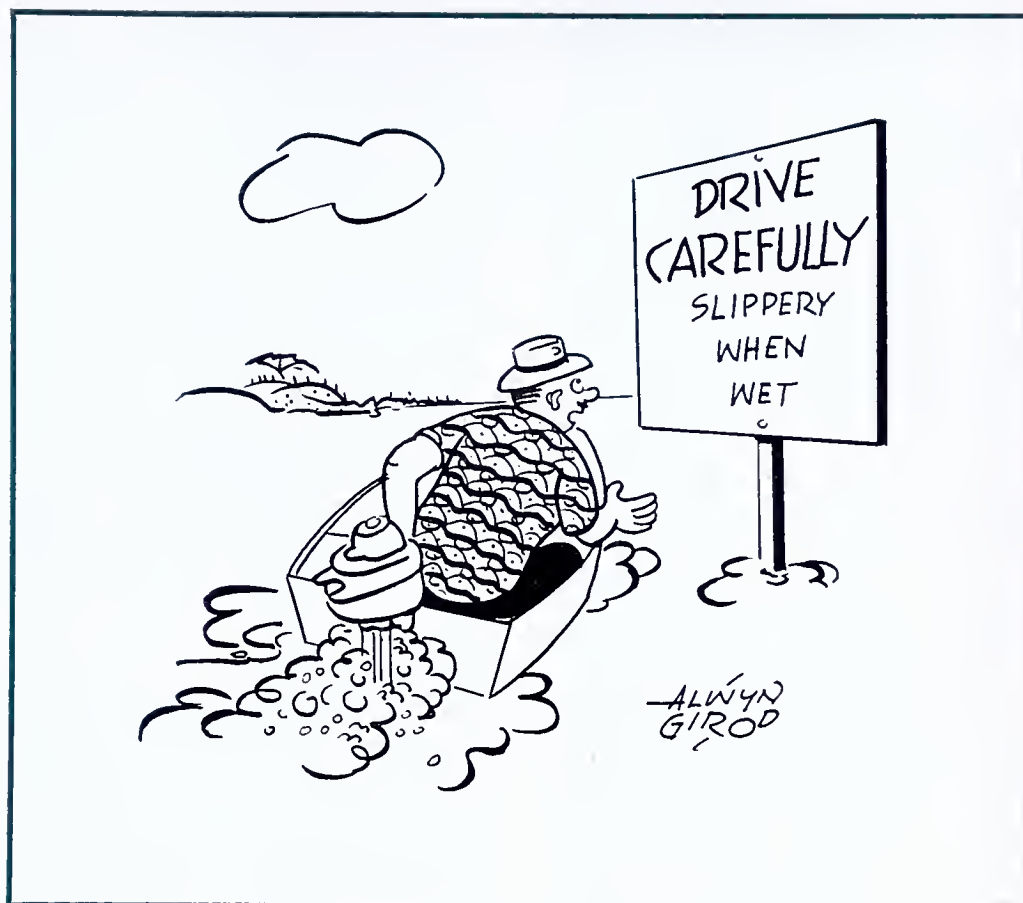
Camps and resorts have experimented with large scale punkie eradication with varying success. One treatment that gave relief for three days consisted of treating several acres with DDT in kerosene, the solution being applied by an insecticide fog applicator. At the end of a week however the punkies had returned to their original abundance.

To the eye, four hundredths of an inch of insect seems hardly more than a good-sized dust mote. That such a tiny atom can bite, and bite so painfully seems incredible. "What do these specks really look like?" and, "how do they do it?" are two questions that immediately come to mind when the punkies start biting. Under the micro-

scope, the punkie appears as a small fly of mottled gray color—even the wings show a pattern of gray or grayish-brown. The head is made up chiefly of a pair of compound, many-faceted eyes. A pair of antennae or "feelers," each of which looks like a string of beads on a wire, sprout from the face of the insect. Below these, particularly evident in silhouette, is a businesslike-looking beak.

The beak, when dissected, shows a complement of parts that is basically the same as that of mosquitoes, and most other blood-sucking flies. There are a total of six parts which are used for either piercing or cutting. Two of these parts, the upper and lower "lips" (labrum and hypopharynx in technical language), are sharp-pointed awl-like structures that are probably used for piercing, particularly at the beginning

of the bite operation. Between the upper and lower "lips" are the two mandibles. Each of these resembles a Roman short sword with the edges toothed near the tip. These blades lie one over the other so that they somewhat resemble the blades of a pair of scissors. Apparently the mandibles do not cut scissor fashion, but are used together as another piercing instrument. The upper mandible together with the upper lip, forms a food canal which conveys blood to the stomach. Associated closely with the mandibles are two slender blades, sharply pointed and armed with teeth near the tip. These are the galea which are believed to act as rasps and gougers. With this assortment of surgical instruments at her disposal it is little wonder that the punkie, tiny as she is, means business when she goes to work.



BASS-BUG FISHING (From Page 15)

10 pound, 8 pound and 6 pound weights. Mostly we use ten-foot leaders tied with 15 pound strands at the top, 12 pound in the middle, and 10 pound points. For lighter bugs or dry flies we use the 8 pound or 6 pound, but mostly we fish 10 pound leader points.

When fishing a lake it is both pos-

sible and desirable to have a dry line which will float on the surface. To keep a line dry and floating you need line dressing. After a good many years of fussing around with various line dressings, we found that *two types* of line dressing were desirable. For the front end of the line—say thirty or

forty feet—a soft, greasy dressing, such as Mucelin, is best. From there on back, the "shooting line," which rides back and forth through the rod guides with each cast, should be dressed with a harder, waxy dressing which should be polished on with a cloth. The softer dressing floats your line better than the waxy kind, but it does not let your line shoot well; hence the two types.

When fishing a river you might just as well make up your mind that you can't keep your line dry. The cross-pull of the current will pull your line under, no matter how much care you use. That is where nylon lines come in handy; wet or dry, they are so light that they practically float awash even when the current pulls them under.

In a lake or a slow moving river you know fairly well where to find the bass, particularly if you are after largemouth. They will be lying beside or under protective cover, such as stumps, logs, bushes, lily pads, undercut banks, and so on. The game is to cast that bug into those places and then to keep it there as long as possible while you give it life with your rod tip. Don't confine all of your efforts to the coves. The points, which jut out into the water at each end of a cove, always are likely spots for big bass. Even though there is no cover, a bass will hang around a point, no doubt waiting for such transient food as may come his way. Fish the points carefully; they usually pay off.

Locating good shore-line fishing in a smallmouth river is something more of a chore than it would seem at first glance. Smallmouth like live water. Also, they are fussy about their water

temperatures. Although a smallmouth is a warm-water fish and, as such, can live quite happily in ninety-degree water, he prefers to live in temperatures in the high sixties. The combination of live water and high-sixty temperatures is not always easy to find.

Perhaps the best place to look for such a combination is where the river sweeps in a curve against the base of a hill. The curve, of course, pushes the current right up against the shore line, giving Mr. Bass the live water he likes. The hill nearly always supplies spring seepage which, of course, brings down the water temperature to the desired high-sixty mark or thereabouts. Find such a place and nearly always you will find good smallmouth fishing therein.

Another excellent place in which to find smallmouth in a river is the area where the water shallows off at the lower end of a deep pool. Most of the natural food in a river lives either in the shallows along shore or in the riffles. Deep water holds comparatively little food. Thus, when a bass is hungry he cruises into the shallows to find his dinner. We hold the boat stationary in the current and cast our bugs down into comparatively

shallow water where the cruising bass often take them readily.

Bridge piers make famous places for big smallmouth. These, of necessity, are out in mid-stream. The bases of the piers are set on rock and bass like rocky places. If you fish these spots carefully, always remembering not to crowd your fish too closely, you will find some real grown-up bass living there.

The foot of a good riffle is a great place for bass, particularly if there is a hatch of insects drifting—an event that happens quite frequently on summer evening. In the North Branch of the Susquehanna there are a great many hatches of May flies in the riffles during July and August. Even though the fish are feeding on flies they will take bass bugs quite readily.

You, who read this, may be a confirmed live-bait fisherman when it comes to bass. Most bass fishermen are. Take my word for it, if you haven't tried bass-bug fishing, you have been missing something. Incidentally, you will take a great many large bass with a bass bug, more than you generally take on live bait. That, too, is worth the time and effort and expense what it may cost to assemble a good outfit and learn how to use it.

MIDSUMMER IDYLL *(From Page 19)*

While a customer was waiting for his grain to be milled he could purchase those little luxuries obtainable only at the general store.

Although the scene was one of steady activity the atmosphere was unhurried, almost lazy. High pressure salesmanship was yet unborn. People lived to enjoy life. The sale of a calf, the banter accompanying the exchange of a shoat for a quantity of staples, were transactions of great import and even greater deliberation.

Fishing? Well, if the fishing was good, meaning, of course, if the fish could be taken in quantity with a minimum of effort, then, those who craved a meal of the finny delicacies would catch themselves a mess. Otherwise, fishing was held in high disrepute, a sluggard's pastime.

Up until a year or so before World War I millponds together with their inevitable mills were still pervaded by the aura of the unhurried, lazy, leisurely days of long ago. The lone figure braced against the great suckery trunk of an ancient willow or sprawled under its grateful shade could very well have served for that of Izaak Walton or any one of his congenial companions,

angling for the elusive shiner or the guttering gudgeon. Three barefoot boys with poles slung over their shoulders trod the emerald, flower spangled grass of the bank to pass the drowsy figure at a respectable distance. The trio was headed for a famed perch hole designated by the misleading and yet, entirely befitting name of Single Elm.

Across the pond where the highway passed could be seen the wispy trails of dust as they curled from the wheels of a passing wagon; the staccato rumble of the wheels strangely merging with the general atmosphere of peace and quietude. The grateful warmth of a friendly sun distilled heady scents from the freshly cropped grass; rich pasturage kept at putting green height by a small herd of truly contented cows.

To the north could be seen a meandering stretch of the brimming river as it emerged from the alder swamp. In the west gleamed the shiny evergreen forest marking the edge of what was locally called Tenant Swamp.

Tenant Swamp with its thickets of June pinks and inhabited by the ghostly forms of varying hares was forbidden territory; forbidden because it refused to divulge the fates of the

three Burns brothers and their two rabbit hounds. Tradition had it that in attempting to save the youngest brother from being engulfed by one of its numerous sinking bogs all three boys fell prey to the sinister trap. The dogs? They refused to leave the spot where their masters had disappeared. Years later the bones of one of the faithful animals were found under the multiple trunks of a laurel bush.

When I was a lad of thirteen or so the general store in front of the mill and alongside the dusty road was operated by one Jeb Stewart, the store having been willed to Jeb's wife some forty years before by an uncle, Silas Kingscot, when he passed on to glory. The business had been conducted in much the same manner since about the time we severed connections with the mother country.

We boys were too young to appreciate the truly wonderful antique treasures with which the store abounded, but in retrospection I vaguely recall objects which are now priceless Americana. The large, squarish center post of the store room still displayed three yellowed placards dating back pretty close to Revolutionary times. I never tired of reading the legends in-

scribed upon them. They are worth repeating.

The person who took the liberty, some time last fall, to take the second volume of Morse's GEOGRAPHY from my house, is desired to return it, & no questions will be asked.

Signed: Metaphore Chase.

MILLS FOR SALE: Two grist mills under one roof; one pair of stones for wheat, the other for corn and rye—situated well for custom and on a good stream of water.

Wanted immediately, a POST-RIDER to circulate our newspaper in surrounding towns.

Signed: John Prentiss.

More poignantly remembered are the tantalizing odors which pervaded the place. A standard combination consisted of lamp oil, freshly ground coffee and vinegar, the blend standing out against a background of dozens of other mysterious smells. The usual combination was spiced up whenever the cheese case was opened or when a fresh shipment of oakum came in. It was absolutely amazing how the tar and kerosene odors united with those of a dozen foods to produce a mixture that was positively attractive.

Whenever mother sent me out to purchase the weekly supply of lamp oil and Sunday meat I would walk a considerable distance out of my way so as to make the purchase at Stewart's Corners. This chore was especially welcomed on rainy Saturdays since the freshened air and freshly scrubbed countryside had odors of their own. Even the acrid smell of the horses at the hitching posts seemingly hit the spot. Inside the store the wet clothing of the customers added to the effluvium. What was more, their talk was such as to give most boys a thrill.

One Saturday afternoon I sauntered in for the usual purchase, two gallons of kerosene and a 50 cent beef roast "and mother said not to trim off all of the fat." I pricked up my ears when I got the gist of the conversation. A Mr. Joe Hemphill was telling about a queer fish that he had seen caught in the eddy just above the dam.

"I 'spec' 'twas a shad," opined Sax Eveland.

"No, 'twasn't a shad. This one I saw was a lot heavier fish than a shad, and it lept like a flying fish." Parenthetically, shad did run up to the dam. None were above it.

"What'd the feller who caught it call it?" sagely enquired another.

"He called it a bass," answered Joe

Hemphill, adding "but to me it looked like a big green punkin' seed."

"Couldn't be," vigorously declared one whom I respected as an expert fisherman, a little old man, a Mr. Cowmeadow. "Why, them kivers (sun-fish)," he continued, "hardly ever get to weigh more than a pound. One even half that big is a big 'un."

"This fish weighs a good three or four pounds," asserted Mr. Hemphill. "Let's go look," he suggested, making for the side door. The handful that followed him were all avowed fishermen, me included.

Still there, the lone fisherman obligingly showed us the fish, a fine 3½ pound smallmouth, the first bass I had ever seen. But I had read all about the species. When dad picked up an early edition of Dr. Henshall's classic it was a prize I avidly devoured and still possess. The author's now famous statement about the gaminess of that peerless fish still thrills me, viz, "Inch for inch and pound for pound, the gamest fish that swims. The royal salmon and the lordly trout must yield the palm to a black bass of equal weight." Remember?

I could scarcely contain myself upon seeing the evidence that bass lived in the millpond. In my hurry to get home so as to tell the thrilling news to my fishing cronies, I not only lost the potato which old Mr. Stewart had jammed down on the spout of the kerosene can, but also a considerable portion of its contents. Next day mother insisted that the roast itself had been tainted by the kerosene.

When Alec Greenwood and Pecker Brown were imparted the news they were all for getting out that evening; no problem that when three hearts beat with the same eager beat and our parents attuned to the same wavelength. We were on what I thought was the hot spot as soon as we could get there after supper.

As was usual with most fishermen of that time, the worm, specifically, the nightcrawler was considered the piece de resistance for all kinds of fishing. For eastern chain pickerel several were dragged as a troll, for bullheads one or two were compactly bunched on the large hook. Our brookies may have been fastidious, but they readily fell for a properly and even an improperly presented worm. Yellow perch, kivers, eels and even frogs went for them in a big way. Those were halcyon times.

However, for this auspicious occasion besides worms we were fortified with a mess of minnows, both suckers and shiners; "the best bass bait that

could be had if the fish that old Hempy had described ~~was~~ a bass."

On our first sally all of us used minnows, carefully floating them down on the sluggish current to what were presumed to be haunts of the highly desirable fish. Each and every one of the trio had been individually briefed by equally enthusiastic fathers as to methods. In practice the methods were similar, but when the trio of fathers got together to discuss them one would have gathered from their arguments that any similarities were purely coincidental.

Alec got first blood and he was nearly yanked into the pond. "Watch him jump!" he yelled, making a quick recovery.

However, there was no jump. The fish bored for the bottom and stayed there, defying all of Alec's efforts to dislodge him. However, Alec didn't fool. His forty-pound test line could take anything that he or his quarry could offer. At last something did give and it was the hook, that bit of tough steel straightening out into what resembled a miniature harpoon.

"That wasn't no bass," declared Pecker.

"Then, what was it?" I asked.

"Bet it's one of them four-foot eels that dad tells about," returned Pecker.

"What happened to it?" ventured Alec.

"Why, they hook their tails under a ledge and that's that," quoted Pecker, repeating what his father swore was the gospel truth.

I was about to ask why we had never encountered them before on our numerous forays when a solid yank shook me right up to my shoulders. Attempting to retaliate with equal vigor I lost my footing and with a lusty yell splashed into the nine foot depth just above the mill race.

My companions grabbed the rod to



"Oh, Let it go, Mac, I'll put on a fresh bait!"

which I had held fast, but left me to my own devices.

It didn't take me long to get out, inspired, no doubt, by the four-foot denizens of those mysterious depths although I had never taken much stock in Mr. Brown's oft repeated stories about them.

As I pulled myself up the low stone wall to the ground level I beheld my companions excitedly chasing something through the lush grass of the pasture. When I got to them they were even more excitedly debating how to deal with the wriggling monster inextricably tangled in a tussock of grass. In the dim light the thing looked like a young boa constrictor. It was one of Mr. Brown's four-foot eels.

After more debate Pecker and I summoned enough courage to pin down the creature's body under the folds of a burlap sack while Alec endeavored to hold a flashlight and at the same time hack at the head with a dull

belt knife. The headless body wiggled for the rest of the night. Indeed, on the following day there were noticeable convulsions when short pieces were ready for the frying pan.

When darkness finally took over we fished on with nary another strike. But we more than thrilled to the magic of the night. Bullfrogs situated at strategic points along the banks vied with each other as their sonorous roars boomed out over the water. A little later a small flotilla of canoes could be dimly seen drifting by while the occupants harmonized with such favorites as *Moonlight Bay*, *Perfect Day*, and *I Wonder What's Become of Sally*. It was living.

As for the bass, no more were caught during the rest of the summer. Singularly, two or three good ones were annually ensnared for the next three or four years and then they disappeared, not mysteriously, for it's more than likely that those lunkers were caught before they had a chance to

propagate their kind. However, from whence they came is still shrouded in mystery.

Those bass did succeed in spicing up a situation which we today designate by the modern interpretation of the word *glamour*. But aren't the movies and the stage and even radio and television glamourizing just about everything which most old timers took for granted? Why, one of these days the movies are likely to dream up a new version of the immortal Izaak's contemplative life. Who knows but what it may have some such title as "The Mermaid in His Life" or "New Angles on the Angler's Angling." All this, no doubt, being inspired by the extra curricular activities which some modern anglers rightfully consider a part of any fishing excursion. Adding insult to injury, the theme song could more than likely be a symphonic movie arrangement of the simple and beautiful *Down by the Old Millstream*. Heaven forbid!

TROLLING (From Page 17)

In trolling, every attempt should be made to follow the course of underwater ledges and channels. In strange waters, this is difficult until you finally "feel" out the bottom as your sinker bumps along the stones. In rivers such as the Susquehanna, the ledges sometimes run diagonal to the course of the stream. During periods of low water, you can usually find these ledges by studying the surface currents.

Becoming caught on the bottom is unavoidable if you are fishing properly. So, you must learn to study the action of your lure to avoid pulling in the line to inspect your lure for moss or other material after each time you become caught. For, often you can free your line without going back over the spot where it has become snagged.

Every action of your spinner or spoon or plug is transmitted to the tip of your rod. By watching the tip when you know your lure is clear of obstructing materials, you will be able to determine if it is still clean after you are momentarily caught on the bottom. This is relatively important as you are frequently using a considerable length of line. Pulling it in, getting up speed with the boat, then letting the line out again can become quite a chore.

(Concluded on Next Page)



"You guys go on ahead, I'll just stay and do some BOTTOM fishing!"

As the shadows deepen, you may find that your deeply trolled rig is failing to attract any customers. It is then that plugs and spoons become most effective.

But, again, choose lures that will provide the maximum action at the slower speeds. The flatfish, in either fly rod or casting sizes, will frequently bring results. Some shallow running spoons and other plugs will also serve well at this time.

Or, if you don't want to give up your spinner combination, just remove some or all of the weights so that it will travel higher in the water. Once darkness sets in heavily, you will do as well on the surface as beneath it.

One of the best walleyes I caught on a recent trip was taken about mid-

night on a surface plug trolled behind the boat in a strong wind.

In giving advice on any particular type of fishing, we must draw upon our own experiences if we would be honest. Others may have their own ideas and theories. However, these offered here are proven ones that have brought fairly consistent results for me. There are times, of course, when the fish simply will not bite regardless of the system used.

But, summing it up, these are the important points to observe when trolling for walleyes:

Troll deeply and slowly with one or more bright spinners as teasers followed by a longshank hook strung with a nightcrawler, minnow or pork rind, or by a bright feather. Follow the

deep channels and rock ledges. During daylight hours, i.e. when cloudy or when the sun is casting shadows early in the morning or late in the afternoon, troll right on the bottom. Troll closer to the surface as daylight wanes until you are right on top when it becomes dark. Vary your lures then to suit your needs; a walleye will hit anything that another fish will hit after daylight hours. Shorten the bait closer to the hook if the fish are striking short. Use equipment that will handle the fish you are after, keeping in mind that a walleye's teeth are sharp.

And, as a word of extra advice, be extremely careful when you get your fish close to the boat. It is then that Old Blearyeye really goes into action.

GHOST BIRDS OF THE MARSH (From Page 13)

sey and possibly Long Island. Somebody reported one of the few Pennsylvania nesting records for the American egret along Sherman's Creek, above Duncannon, Perry County, in the late 1880's.

Both the American egret and the dainty snowy egret have beautiful white plumes growing from their backs during their breeding seasons in spring and early summer. Someone in the millinery trade suggested using these plumes to adorn women's hats. From that time on, about 1840, the slaughter of egrets began, particularly in the southern states where they nested most commonly.

Plume hunters in southern swamps located the rookeries by watching the directions in which egrets flew going to or from their feeding grounds. When

they found the rookeries, they shot the parent birds on their nests, ripped the "scalp," or egret plumes, off their backs, and left thousands of young birds to starve and unhatched eggs to rot. Within 60 years, the American and snowy egrets were almost extinct.

Meanwhile the National Audubon Society, or National Association of Audubon Societies as it was called at that time, set up sanctuaries to guard the last of the egrets. Two Audubon wardens were killed defending egrets from plume hunters, and the fight of this organization against the commercial use of egret feathers succeeded only after a long and bitter struggle. In 1933, a sizable colony of egrets returned to nest in southern New Jersey for the first time in more than 100 years. Today the American egret nests

in that state as far north as Sandy Hook, and may be nesting in Pennsylvania again.

If you see some of these big white birds along your favorite trout stream or bass pond, don't be afraid of competition. Although egrets eat some small fish, a healthful culling that the remaining fish profit by, they also eat crayfish, frogs, mice, moles, small snakes, fiddler crabs, snails, and grasshoppers and other insects.

I still find, as I hope you will, that these white birds standing along a pond or stream bank give an unearthly beauty to our waterways. If you find egrets nesting, by all means, report it. You may have the honor of discovering Pennsylvania's first nesting egrets in 75 years. You will also reassure me that those "white cranes" of my boyhood weren't ghost birds after all—that they are *real* birds that have come back to stay.

DRAGONFLY FANCIES AND FACTS (From Page 11)

a rare species, *Agrion amatum*, hovering about the blossoms of a button-bush. These beautiful dragonflies with their iridescent abdomens and long, narrow, brown-tipped wings appeared to be indulging in the nectar of this sweet-scented shrub. A closer examination, however, proved that the dragonflies were busy catching and eating other insects lured to the fragrant flowers. Although mosquitoes are said to be their favorite food, dragonflies will attack almost any

moving insect that strays within the range of their many-faceted eyes. They are absolutely fearless and will attack insects many times larger than they. And when food is scarce, they will turn cannibal and devour each other.

In earlier ages the dragonfly must have been a spectacular and awesome creature. Fossils show that his wing spread during the Carboniferous Period was over two feet. Today, our largest dragonfly in the United States has a wing spread of less than 6 inches.

The order of dragonflies is divided into two sub-orders. In the first are the larger, sturdier insects whose wings are held horizontal when at rest. They are often very colorful, and are usually strong, swift fliers. In the second group are the smaller, frailer insects, whose wings when at rest fold together in a line with the line of the abdomen. These rarely fly far from the vegetation that lines the margin of the pool or stream in which they were born. Often members of this group are called "damselflies." They are usually black

and blue, yellow, or red, and their flight is slow and wavering.

There is still a lot that we don't know about dragonflies. The complete life histories of about 6 species have been worked out. Scientists are very vague about the distribution of many of them over the United States. In some species only one sex has been collected, and hardly a year passes without the discovery of some dragon-

fly that has escaped attention, and is named and described for the first time. The entire order is considered beneficial although it is known that in their water stages, they destroy many newly-hatched fish. The larger fish, however, are very partial to dragonflies on their food list.

The dragonflies offer the student an excellent introduction to the fascinating insect world. They are large enough

to be studied without the aid of high-powered lenses; they are sturdy enough to be handled without forceps. Netting a large dragonfly is no simple trick. It becomes a sport. The desire for new and rarer species will lead the student into unusual places; it will take him into the out-of-doors to pit his stamina and resourcefulness against the speed and elusiveness of one of the most beautiful of all insects

CARP CAPERS (From Page 22)

baited up to the ceaseless song of the river, to a catbird calling from the brush, to a few small frogs somewhere below. From boyhood I'd known that the traditional carp baits were dough sweetened with corn meal and perhaps a bit of molasses for sweetness and cohesion; half-cooked potatoes; fresh bread; and common earthworms. Today I baited up with a corn-meal mixture Johnny Jones had prepared.

Now I used none of the techniques of the old-fashioned carp fishermen. To begin with, I used my trout rod, trout line, with a leader tapered from 8 to 1x. I used a number eight hook. We'd been told that innumerable small carp were in these river holes. We weren't after any record breakers but if we tangled with a lunker, there'd be fun and then no doubt a broken leader.

I'd been warned by older carp fishermen that the approach would have to be as quiet, as slow, as deliberate, as any trout fisherman's approach, and I've since found this to be true. Carp are extremely shy fish. A shadow passing over them will send them scurrying and put them off-feed. So after baiting up I walked very slowly into the stream, which I noticed was roily along the shoreline, possibly from carp working in the mud bottoms.

The sun was flashing against my eyes as I made the first cast, to the foot of the riffle, the line slowly drifting downstream, the dough-bait disappearing. I gave no motion to the bait, permitting a natural drift. Soon, as the current slowed, the bait settled, moving ever so gently as stray currents picked it up.

The first wait was not a long one, possibly ten minutes. Then I saw the line jerking, once, twice, and then I saw a slow, steady draw. I set the hook and the fun was on.

He was a twelve-inch, not pound.

carp, but on the light tackle I had great sport. Oh, there was no spectacular nose-diving, as with a trout; no express-train rushing, as with the pickerel. But pound for pound, I believe the carp is one of the strongest fish alive. And the carp is tireless. It took me as long to land that carp as it would have taken to land a twelve-inch brown trout.

Of course, that stirred up the hole pretty bad, and below, I couldn't get a strike. This we've learned: those carp you see drifting slowly about the backwash of streams are loafing, not feeding. Generally, they won't bite. To feed, they swim nose-down into the shallows, as suckers do.

So it was another half-hour before I hooked into the second carp, this time, a smaller one. Even the smaller carp had fighting qualities which, to an old carp-hater, were surprising. I grinned to myself, for here was a new sport. When the trout fishing was done, when bass were off-feed, why not tackle the carp?

That afternoon and early evening, Johnny Jones and I creeled eleven carp, and Johnny had an eighteen incher which had given him trouble aplenty. Carp do not stop feeding at nightfall, although we stopped our fishing. Actually, carp very often bite better after dark than before. I don't describe each individual battle, for all of them followed the same pattern. I want to tell you about my final surprise.

The final surprise came at the kitchen table. Once before, I'd tasted carp and found them muddy tasting and thus objectionable. Tonight, however, Johnny Jones' wife served these youngsters golden-brown, and I smacked my lips, not politely, but in honest enjoyment.

"No muddy taste at all," Johnny

Jones said, holding the fish in his mouth to hunt for flaws. "Hecks, they ain't half-bad."

"Half-bad?" I echoed. "They're actually tasty. Maybe it's the type of water the carp comes from. I've tasted muddy bass that came from mud-bottom lakes."

"I suppose an old carp would taste pretty muddy, caught just about anywhere," my pal said. "But these fish aren't even soft, like summer suckers."

. . . Now don't get me wrong. I'm not telling anyone that carp fishing has the excitement, even with light tackle and fished as I've described here, which good trout fishing has. Carp are slow movers, often slow feeders. But I claim this:

Many of our Pennsylvania streams have great numbers of carp. The smaller fish feed heavily at the heads of pools and will readily take bread or dough-bait. It takes some patience and skill to catch them. And when hooked, the carp put up a determined fight that will surprise you. Give him a break on light tackle, and see.

Game-fish off feed, right now? Try the carp. Maybe you won't have such utter contempt for him, after a try or two. I guarantee you some surprises—not the least of which is to be found at the kitchen table.



"Not so hard on the forward pull, Bascom!"

CASTING ROD ACTION

(From Page 23)

handled will kill a fish more efficiently, and faster, than the heavier ones. There is no reason why these light rods cannot be used on any fish in eastern waters where midget lures are effective. I have never seen a fisherman who once used a really well balanced light outfit go back to the heavier tackle. It is too much fun and too productive of fish.

The standard outfit, that designed to cast lures weighing from one-half thru five-eighths of an ounce, is the one most used. In fact, the half ounce lures are generally considered to be in the light lure class. However, the standard rods with medium action as made today are capable of handling both weights satisfactorily. Rod length for these lures is usually from five to five and a half feet with increasing preference being shown for the longer ones. These rods will be slightly stiffer, even in the ones designated light action, than the longer light lure rods. They do have a lot of snap, however, and can generally be depended upon to have good hooking qualities. Action will be

farther toward the tip with stiffer butt and middle portions.

These are the rods which will serve a useful purpose for the man who wants one rod to do a variety of jobs. They cast well within their own weight range and can, with a little extra effort, be made to do a fair job with lures in the three-eighth ounce class. Then, too, they are generally strong enough to use on three-quarter ounce plugs if absolutely necessary. Especially if the rod is made of glass-plastic will the weight range be wider without fear of damage to the rod. Though these rods are not quite as easy to use as the very light ones they are, for their purpose, quite satisfactory.

The heavy rods, or perhaps it would be better to say the rods designed specifically for heavy lures, are generally shorter and stiffer than any other type. They are meant for use on heavy, hard-mouthed fish where a good solid sock is necessary to properly set the hook. Muskies and big pike more or less demand this type of tackle although there is a tendency to use slightly longer

rods than was formerly the case. A plug of an ounce in weight demands a rod with considerable backbone. The principal reasons why these rods are generally short, four and a half to five feet, sometimes less, are to cut down weight, to reduce undue flexibility, and to bring the heavy lure closer to the hand where its weight is not as noticeable. Very few Pennsylvania fishermen have need for such a rod in their own home territory. Those who do need them know that, in spite of the weight, they may be moderately pleasant to use when properly balanced with the correct reel and line.

What rod action you need thus depends mostly on the type of lure you intend to use. It has been amply demonstrated by the Pennsylvania light lure fishermen that plugs of about one-fourth of an ounce are most efficient for bass in their waters. This being true, it necessarily follows that the long, light action rod is most suitable for their needs. Not only will it handle anything in the quarter ounce class but will also be usable with lighter lures. It is sufficiently strong, responsive, and pleasant to use. There is really no need to use anything heavier.

WET WADING (From Page 20)

Fishing jackets and vests are nuisances in hot weather. A man wearing one of them will be uncomfortable in hot weather even when he is wading wet. There is on the market today a handy chest tackle kit consisting of two canvas bags attached by straps which go over the shoulder, leaving one back on the angler's back and the other high on his chest.

It's amazing what one of these kits can hold—surely more tackle than any angler needs for a day of sport on the stream. The front compartment of one I use, for instance, is large enough to carry six boxed casting rod plugs, along with a packet of leaders, a spare pack of cigarettes, and some smaller odds and ends.

The stringer, incidentally, is another handy gadget for the wet wader—that is, if he intends to keep any of the fish he catches.

It can be fastened to the belt and allowed to dangle in the water. Even with a couple of fish fastened to it, there is no interference with the angler's movements. And it does do away with bulky, irritating canvas or willow creels.

A few words of caution are in order for the angler who is not experienced in the art of wet wading.

He needs, above all, to be aware of where he is wading. He'll be happier if he doesn't have to learn this lesson the hard way—as I did.

A nice trout busily rising on the far side of a large pool in a Central Pennsylvania stream attracted my attention early one evening. I was wading wet, so without giving the matter a second thought I began to work my way toward the fish. I could feel small pebbles and gravel under my feet, and I kept my attention on the spot where the trout was feeding.

I had just about worked my way into casting range of the fish when I took a sneaking step forward with my right foot—and walked right off into watery space. How I kept my balance still is a mystery, but a few seconds later I was standing in water that lapped over the tops of my shoulders and the great splash I had made had ruined all chances of interesting that feeding trout in any of my flies.

What happened was that, without realizing it, I had been sneaking along

a narrow gravel bar and had stepped off one side of it into about five feet of water.

It's important for the angler to move carefully over a rough stream bottom, even if he doesn't care about water depths. Sharp rocks can inflict painful bruises and cuts on legs protected only by trousers; a twisted or broken ankle or leg can result from stumbling or slipping while wading.

It is worth repeating shoes that give support to the ankles, socks that cushion the feet, are important.

And since the wet wading angler often gets the most sport out of exploring the farthest reaches of a creek or river, two other items of equipment are essential. One is a hat to protect the head from the sun. The other is a pair of sun glasses to overcome the glare of water and reflections of the sun.

I'm not suggesting, of course, that you imitate that old-timer in Muncy and go wading in the icy waters of the early season.

But wet wading is the system for the fellow who wants to keep on fishing in comfort even when the hottest days of summer roll around.

The Editor's Angle

Dear Sir:

Am renewing my husband's subscription to the PENNSYLVANIA ANGLER as it is a fine magazine for any home. We are both sportsmen and belong to the West Chester Fish and Game Assoc., enjoy reading every bit of the publication.

We have a tropical fish hobby shop here and the boys enjoy looking at the ANGLER, interested in the breeding habits of all types of fish or anything of help to their hobby. I enjoy all sports magazines but my favorites are the ANGLER and Game News. Hope the good work continues.

Mrs. George H. Burkeyheiser
West Chester, Pa.

Editor:

Am sending check for \$1.00 for 2 years subscription to PENNSYLVANIA ANGLER. May I add I have only fished for 60 years being a novice 70 years old and still learning. The Harvard shelf of classics measures 5-ft. I have only 4½-ft. of books on fishing, Izaak Walton to John Alden Knight.

The articles in the ANGLER bring to mind the old saying of my fishing father, "It isn't what you say; but where you sit when you say it that counts!"

Please accept my thanks and most sincere appreciation for every issue I have read.

HALL HARRISON

Owings Mill, Md.

Downingtown Sportsman's Club Elects New Officers

The following officers were recently elected by the Downingtown Sportsman's Club for the ensuing year, March 1, 1952 to March 1, 1953: President, James H. Dukeman; V. Pres., Amos Summers; Secretary, Elmer F. Schrupf and Treasurer, James I. Summers.

Central Snyder Co. Sportsmen's Assn. Host to 200 Youngsters

More than 200 boys and girls up to 12, most accompanied by their parents attended a "Kids' Fishing Party" at Paxtonville, Pa. recently. The affair was sponsored by the Central Snyder County Sportsmen's Association.

Prizes were awarded to the four youngsters catching the largest fish. 300 trout were specially stocked by the club in Paxtonville pond for the event.

Dear Sir:

Enclosed is \$1 for 2-year renewal to the PENNSYLVANIA ANGLER. I have spent many pleasant hours reading your wonderful magazine and, since I am a fly tyer, have gained many valuable hints on the art included in it. I might also add that I have caught some trout on the flies I made so hope you will continue with those wonderful articles. Also congratulations on your trout stocking and research programs in this state.

Roy Britton

Canadensis, Pa.

Dear Sir:

Your article, "How To Bend On Garden Hackle" was very interesting. Why not more articles of this type on bait fish and fish bait?

Lewis Hatzas

Reading, Pa.



Above—

JUNIOR FISHING CHAMP—Judge H. Keller (right) of the Bucks County courts presents the official coronation certificate to Miss Gloria Paulyson, 13-year-old Trumbauersville girl, crowned Pennsylvania State Junior Fishing Champion at a ceremony recently in Quakertown High School auditorium. Looking on are Raymond E. Strunk, (left) president of the Great Swamp Fish, Game and Forestry Association, sponsor of the coronation, and J. Allen Barrett, Public Relations Director, Pennsylvania Fish Commission who gave the coronation address.

Dear Sir:

Enclosed is pix of my husband, Alton Rossi, holding his prize-winning muskie caught in Presque Bay, Erie, Pa. on Oct. 5th last. The fish was 49 inches long and weighed 30 pounds, and took top prize sponsored by an Erie newspaper, the Erie Dispatch.

Mrs. Alton Rossi

Erie, Pa.



Warden Ralph Singer sends in the following bit of prose written by Louise Murray whose father is a member of the Blooming Grove Sportsmen's Club:

Friendship

No one can possibly get along in this world without friendship. True friends are the essence of life. To have someone with whom you can be absolutely frank and really at ease, is one of the necessities of nature. There are times when expression of your thoughts and feelings is a great relief, especially if you are assured the person understands and trusts you.

Friendship must be a lasting fondness which is mutual to those concerned. It is made up of love and regard for each other which should enable one to comfort the other in hours of distress, as well as to be gay when happiness prevails. Its presence should give cheerfulness and courage and should dispel fear or sadness.

Any obligations or favors can never actually be repaid, as there is no way in which we can express our appreciation other than with a few words which are usually extremely inadequate. There should be no secrets between friends, nor should there be any form of restraint; naturalness must always be a prevailing factor.

A person without a friend should be looked upon with pity, and one who is fortunate enough to have a true friend is blessed in the best way of all.

Louise Murray—"League Lights"—April 1936.

To the Editor:

I want to add a little something to the bullfrog story that appeared in the June issue of the PENNSYLVANIA ANGLER. I'm not much of a story writer but I sure love to read good articles such as are printed in the ANGLER, hate to miss an issue. My wife is just as crazy about it as I.

Now a short story about a bullfrog I

had the pleasure of meeting when I was a small boy. I lived with my parents on a farm near Mohnton, Pa. My parents had a few cows and the milk we received was cooled in a spring house with a platform built over part of the spring. The outlet of the spring was guarded by a few steel bars so nothing could get in or out. We had a full-grown frog in the spring house which was very tame. We could pick him up at will.

One day while my parents were absent I picked him up and fondled him. I learned something from this which prevents me from eating frog legs to this day. In some manner I turned him over on his back and tickled his stomach. That frog cried just like a baby and anyone who could eat frog legs after hearing the cry just couldn't have a hankering for these so-called delicacies. Try it yourself if you do not believe me!

Some 30 years ago while fishing with friends at night in Perkiomenville in the creek by the same name, I caught a big bullfrog in my landing net and tickled his stomach in much the same manner as heretofore described. A gentleman along the stream heard the sounds and asked me if a baby was crying nearby. I had one heck of a time convincing him it was only a frog. I'll bet this guy will never eat another frog leg after hearing that sound.

There is no sweeter music than to listen to the frogs at night from the marshlands and it is my hope people will let the bullfrog go his humble way. My wife took charge of the June ANGLER story and added it to her scrap book collection.

PAUL W. BEECHERT

Reading, Pa.

Mr. Howard Amacher of Wellsboro kindly sent us a clipping from a local newspaper which told of the death of William B. Smith, lifelong citizen, sportsman and business man after he was stricken while fishing on Pine Creek. When found, Mr. Smith had a nice catch of trout in his basket. An ardent angler, he died upon his favorite stream at the age of 90.

* * *

Wilber E. Goodheart who operates a welding and auto repair business in Shippensburg finds it tough sometimes to get away from his business. But last April 15th, Goodheart posted the following note on the door of his garage which read—"BY THIS YOU WILL NOTICE I HAVE GONE FOR TROUT. THE WAY THEY BITE IS HOW LONG I'LL BE OUT!"

Mr. Goodheart took the sign down after returning at 9 a. m. He caught a nice 17-inch brown and 15-inch rainbow.

* * *

Dear Editor:

Enclosed is one dollar, please send me the ANGLER for the next two years. I consider it the finest fishing magazine to be found anywhere and enjoy its interesting stories and yarns from cover to cover. "If You Would Catch More Fish—Kill Less" is a slogan I am very glad to see and

which I hope will bring to the fisherman's mind conservation first, and fish in the creel, second. Please continue to give us such fine articles in your colorful ANGLER.

John Tompkins

Philadelphia, Pa.

Dear Editor:

Enclosed is \$1 for renewal of PENNSYLVANIA ANGLER for two years. I really enjoy reading the ANGLER and catching up on fishing back home. I have been doing some fishing over here in Germany and have caught some nice trout and a lot of other fish we do not have in Pennsylvania. The German people here go strong for eels and the season is just coming in. Sure have some nice streams over here.

Peter Cherok

Somewhere in Germany
with Armed Forces.

Dear Sir:

I think the Fish Commission should be commended for stocking Harvey's Lake with trout. Because there is plenty of room for fishermen to fish, it gives the trout a lot of room to spread out. Since this is a cold, deep lake all year around, I think trout have a good chance for survival over the season. In all my 25 years trout fishing I had the best catch there this past season on opening day.

Ed Kuni

Plymouth, Penna.



Photo by Bob Parlamen
—Penna. Game Commission

Display of trophies presented to winners in casting tournament sponsored by Charleoi Sportsmen June 14. Seated are: (l-r) Club President, Libengood; Ed Wright, chairman of the tournament; committee members, Mrs. Wm. Pokey and Wm. Pokey. 68 casters entered the competition.



Part of opening day crowd of youngsters waiting to register in the annual Fishing Project sponsored by the Harrisburg Optimist Club. At registration desk, l-r are Dr. Ross, past president of the club and Harrisburg's Mayor Robins.

Harrisburg Optimist's Sponsor Sixth Fishing Project at Italian Lake

The Optimist Club of Harrisburg sponsored its sixth annual Fishing Project at Italian Lake on June 17. Over 500 boys and girls registered for the event. Days for fishing have been set for Tuesdays and Saturdays of each week throughout the fishing season. Prizes are awarded at the end of the season to boys and girls catching the largest fish of each species. Winners names are sent to Better Fishing, Inc., to compete with other boys and girls throughout the country for possible national awards.

The Optimists find the project growing more popular each year, helps develop sportsmanship and wholesome recreation for the youngsters. O. A. Smith, Jr. is President of the Harrisburg club.

▼ DISPLAY BOOTH sponsored by the Federated Sportsmen's Clubs of Berks County in the Berks County Sportsmen's Show held this past Spring in Reading, Pa. Thousands of visitors to the Show viewed the display.

Pennsylvania Fish Law Violations

ALLEGHENY COUNTY

Anthony, Wm., 732 7th St., Pitcairn, Pa. Two undersized trout	\$20.00
Banks, Eugene, R. D. No. 4, Coraopolis, Pa. Illegal operation of motorboat	10.00
Brennan, Sarah, 900 Sherman Ave., Pittsburgh 12, Pa. One bass in closed season	10.00
Brumbaugh, Paul, 4032 Greensburg Ave., Pittsburgh, Pa. Rules and regulations	20.00
Evans, Al, Box 90, Bellevernon, Pa. Two undersized trout	20.00
Evans, Charles, R. D. No. 2, Bellevernon, Pa. Two undersized trout	20.00
Evans, Philipe, 229 Taylor Pass, Monesson, Pa. Two undersized trout	20.00
Hellam, Ross, 5018 Lougean Ave., Pittsburgh, Pa. Fishing without a license	25.00
Hartley, Margaret, 4733 Bayard St., Pittsburgh 13, Pa. Fishing during closed season	5.00
Holtz, Charles, 219 Spencer St., Carrick, Pa. Exceeding creel limit	10.00
Iddon, Edward, 221 Lea St., Munhall, Pa. Loaning a fishing license	25.00
Joyce, John R., Jr., 410 Rochelle St., Mt. Oliver, Pittsburgh, Pa. Fishing on borrowed button; no license ..	25.00
Kemerer, D. M., 1712 Grandview Ave., North Braddock, Pa. One undersized trout	10.00
Klimek, John, 1021 Ridge Ave., Pittsburgh, Pa. Fishing without a license	25.00
Metz, Thomas, 11 Locust St., McKees Rocks, Pa. Fishing during closed season	5.00
Michael, Wilbur, R. D. No. 2, Tarentum, Pa. Illegal device	20.00
Miller, Wm., 334 22nd Av., Munhall, Pa. Fishing without a license	25.00
Ohler, Charles, R. D. No. 12, Pittsburgh, Pa. One undersized trout	10.00
Schmidt, Wm. Jr., No. 5 Robertson Place, Etna, Pa. Fishing during closed season	5.00
Schmidt, Wm. Sr., No. 5 Robertson Place, Etna, Pa. Fishing during closed season	5.00
Smith, Andrew, 332 E. Street, Pittsburgh, Pa. Rules and regulations	20.00
Tanakis, Andres, 118 Carrich Ave., Pittsburgh, Pa. Loaning a fishing license button	25.00
Tofanelli, John, 78 Ruth St., Pittsburgh, Pa. Exceeding creel limit..	10.00
Towne, Garnett, Blackburn Rd., Sewickley, Pa. Fishing on Sunday without consent of landowner ..	25.00
Wiesert, Kenneth, 3332 E. Street, Pittsburgh, Pa. Rules and regulations	20.00

ARMSTRONG COUNTY

Ball, Richard, Jr., 164 N. McKean St., Kittanning, Pa. Exceeding creel limit	10.00
Campbell, Wane, 138 Allegheny Ave., Applewald, Pa. Exceeding creel limit	10.00
Hopper, Allen, R. D. No. 1, Mahoning, Pa. Exceeding creel limit	10.00
Righi, Angelo, 504-13th St., Ford City, Pa. Illegal operation of motorboat	10.00
Shaeffer, John Jr., R. D. No. 1, Kittanning, Pa. Exceeding creel limit	10.00
Tfaff, Max, East Brady, Pa. Fishing on Sunday without consent of landowner	25.00

BEAVER COUNTY

Campbell, Earl, 417 Mulberry St., Bridgewater, Pa. Fishing on Sunday without consent of landowner	25.00
Ehrenberg, Fred, 2001 12th Ave., Beaver Falls, Pa. One bass in closed season	10.00
Filauri, Roman, 225 6th Ave., Koppel, Pa. Exceeding creel limit	20.00
Giles, Paul, R. D. No. 3, Beaver Falls, Pa. One bass in closed season	10.00
Harchick, Wm., 338 River Ave., Aliquippa, Pa. Fishing on Sunday without consent of landowner ..	25.00
Stewart, Harold, 556 9th Ave., New Brighton, Pa. Exceeding creel limit ..	20.00
Werner, Carl, 1238 Indiana St., Monaca, Pa. Exceeding creel limit ..	20.00

BEDFORD COUNTY

Bailey, Clyde Jr., Manns Choice, Pa. Fishing during closed season	5.00
Helsel, Helen, R. D., Saxton, Pa. Fishing without a license	25.00
Helsel, James, R. D., Saxton, Pa. One bass in closed season	10.00
Helsel, James, R. D., Saxton, Pa. Fishing without a license	25.00
Ickes, Laman, R. F. D. No. 1, Imbler, Pa. Exceeding creel limit	10.00
Theys, Lloyd M., Riddlesburg, Pa. One pike in closed season	10.00
Whitfield, Owen, Saxton, Pa. Illegal device	20.00

BERKS COUNTY

Angstadt, Nevin, R. D. No. 2, Kutztown, Pa. Fishing in a closed stream	25.00
Bailey, Charles, R. D. No. 2, Kempton, Pa. Fishing in a closed stream	25.00
Bennicoff, John, R. D. No. 1, Kutztown, Pa. Fishing in a closed stream	25.00
Drase, Frank, 310 W. Buttonwood St., Reading, Pa. Illegal device ..	25.00
Holben, Herbert, R. D. No. 1, Kutztown, Pa. Fishing in a closed stream	25.00
Hyatt, Martha, 20 S. Second St., Reading, Pa. Unnaturalized resident fishing without a license ..	20.00
Lymaster, Elmer, R. D. No. 1, Bethel, Pa. Illegal device	20.00
Reifinger, Lloyd, Topton, Pa. Fishing in a closed stream	25.00
Rollman, Adam, 127 N. 3rd St., Hamburg, Pa. Fishing in a closed stream	25.00

BLAIR COUNTY

Dellaposta, Louis, 820-40th St., Altoona, Pa. Illegal device	20.00
Sabe, Joseph Jr., R. F. D. No. 1, Hollidaysburg Pa. Illegal device ..	20.00
Shoenfelt, Ray, N. Juniata St., Hollidaysburg, Pa. Illegal device	20.00

BUCKS COUNTY

Sigafoos, Arthur, Uhlerstown, Pa. Fishing in a closed stream	25.00
Smith, Milton, Trenton Ave., Hulmeville, Pa. Illegal operation of motorboat	5.00

BUTLER COUNTY

Ditty, Clayton E., R. D. No. 1, Harrisville, Pa. Fishing without a license	25.00
Ferguson, Bruce, R. D. No. 1, Branchton, Pa. Aiding and assisting in taking fish with illegal device	20.00

Fowler, Wm., 545 6th Ave., New Kensington, Pa. Fishing in a closed stream	5.00
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CAMBRIA COUNTY

Adams, Donald, 169 C St., Johnstown, Pa. Fishing in closed season	5.00
Adams, Robert, 323 Boyer St., Johnstown, Pa. Fishing without a license	25.00
Bunnel, James, Lilly, Pa. Fishing in closed season	5.00
Fetsko, Thomas, Beaverdale, Pa. One undersized trout	10.00
Gabany, Wm., Mineral Point, Pa. Fishing in closed season	5.00
Gabany, Joseph, 795 Lake St., South Fork, Pa. Fishing without a license ..	25.00
Henry, Joseph, 403 Chestnut St., Conemaugh, Pa. Operating motorboat without a license	10.00
Hirsch, John, 320 Wood St., Johnstown, Pa. Fishing in closed stream	5.00
Lewis, Wm., 506 State St., Johnstown, Pa. Fishing in closed season	5.00
Maul, Pete, 835 Orchard St., Portage, Pa. Rules and regulations ..	20.00
Motzer, James, 1215 17½ St., Altoona, Pa. Rules and regulations ..	20.00
Sekerak, Steve, 1055 Hill St., Nanty Glo, Pa. Fishing in closed stream ..	5.00
Wills, Raymond, South Fork, Pa. Fishing in closed stream	5.00

CARBON COUNTY

Drabic, Michael, 342 W. Snyder St., Lansford, Pa. Rules and regulations	20.00
Hrinda, Michael Jr., 357 W. Mill St., Nesquehoning, Pa. Exceeding creel limit	40.00
Vido, Willard, 136 Lafayette Ave., Palmerton, Pa. Fishing in closed stream	25.00

CENTRE COUNTY

Morris, E. A., R. D. 2, Howard, Pa. Rules and regulations	20.00
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CHESTER COUNTY

Cuff, Lucille, R. D. No. 1, Malvern, Pa. One bass in closed season	10.00
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CLARION COUNTY

Oyler, Marion, R. D. No. 2, Sligo, Pa. Fishing without a license ..	25.00
Smyers, Paul R. D. No. 1, Fairmont City, Pa. Exceeding creel limit ..	10.00

CLEARFIELD COUNTY

Braund, James, 320 S. Jared St., DuBois, Pa. Rules and regulations ..	20.00
Condon, Robert, Woodland, Pa. Exceeding creel limit	10.00
Curry, Edward, Kerrmoor, Pa. Fishing in closed stream	5.00

CLINTON COUNTY

Ashburn, Carrol, 123 E. Water St., Lock Haven, Pa. Fishing in closed stream	25.00
Dietz, Walter, 439 High St., Flemington, Pa. Exceeding creel limit ..	10.00
Fetter, James, 10 S. Jones St., Lock Haven, Pa. Rules and regulations ..	20.00
Hemmerly, Albert, North Bend, Pa. Illegal device	20.00
Herr, Hartmen, 306 N. Vesper St., Lock Haven, Pa. Rules and regulations	20.00

(Continued in Next Issue)

Our Anglerettes—

"Family Meets Insect"—By Ellen A. Dietrich

Family Meets Insect

"H-e-l-p! M-o-t-h-e-r! H-E-L-P!"

The terrified and terrifying shrieks of her child were thus echoed back over the peaceful surroundings of a calm summer day to Edith, as she lazily basked in the sun, watching with half-closed eyes the movements of her bobber.

No bass had as yet been sufficiently foolhardy as to become attracted by the movements of the lively minnow at the end of her line. In fact, she had secretly hoped that none would. She had decided to permit herself to enjoy an afternoon of complete inertia, still fishing, while the other members of the family indulged in more strenuous forms of piscatorial endeavor.

When her five-year-old daughter's screams rent the air, however, Edith was immediately alive.

Springing to her feet, as though suddenly electrified, unmindful of rod, reel and other paraphernalia, she made her way, half running, half stumbling, downstream in the direction from whence came the voice of her frightened child.

Mother had not realized her family had strayed so far away. Little wonder there was trouble, she thought. But what was it? And were the children no longer with their father?

As she swiftly neared the disaster zone, Edith came upon her five-year-old daughter, Babs. The child was standing as though she were glued to a spot. Great tears were streaming down her pretty face, her eyes were wide with horror, her arms outstretched toward mother.

Scarcely ten feet away from the girl, but standing as though he, too, were glued to another spot, was Babs' nine-year-old brother, Larry. His eyes were as large as saucers and his face, almost chalk-white. Between gritted teeth, he was unsuccessfully trying to persuade his sister to discontinue screaming.

"Tell her, mother, that she'll only frighten the thing and then it really might hurt her," begged brother, as Edith reached the side of the terror-stricken girl.

"What thing, Larry? What in the world are you talking about?" his mother demanded, bewildered and breathless.

"On my back, mother!" choked Babs. "He says it's an ugly, awful thing and he won't take it off!"

Mother then saw the "thing." It was, indeed, she thought, an ugly creature. She had never before seen anything like it. A slender, green body about four inches long, perched on the very middle of the back of Babs' dress.

Why, thought mother, the darned thing was actually turning its queerly shaped head from side to side, looking her up and down with great, round, beady eyes. And that sharp mouth, shaped quite like a falcon's beak, did look as though it might do a good job of biting, or at least pinching human flesh!

"Oh, if only I had gloves! Where's your father?" asked Edith with forced calmness, as she glanced downstream through the bushes but failed to locate her husband.

Larry tried vainly to stiffen his quivering lips. Faltering, he replied: "He's away down by the d-d-dam."

Both brother and sister now sensed that mother, too, was afraid to touch the grotesque creature on sister's back. Realization of mother's fear was too much for even big brother Larry. No longer able to maintain his forced outward semblance of bravery, he lowered his head into his hands and burst into tears.

For poor Babs, this was the last straw. Becoming almost hysterical at the unexpected turn of events, she sank to the ground on her face, shrieking even louder than before.

Such was the scene when father came upon his family.

For, father, too, had heard the cries of his small daughter; and he had suddenly realized that his children were no longer close by.

Swiftly, he had reeled in his line. He, too, had stumbled as he made his way out of the water near the edge of the lake and raced as fast as his hip boots would permit toward the area of distress.

Utterly distraught and weak, Edith looked up from her terrified youngsters as her husband approached.

"Or, Harry," she cried. "That awful creature on Babs' back. Please get it off before it b-b-bites her!"

"Now, now!" soothed father, as he

removed the strange insect from his daughter's dress and placed it on a nearby bush. "This funny little fellow won't harm anybody. Why, it's only a *praying mantis*!"

Larry was first of the terrified trio to regain composure.

"A praying mantis, father?" he queried, shame-facely drying his tears on his sleeve. "Did you say it's a praying mantis?"

"Yes. Haven't you heard about the praying mantis?" asked dad.

"I never saw one before," Larry then volunteered, "but we did read about them in school."

"And what did you read about them, son," encouraged father, as mother now quietly sat down beside Babs and soothed her feverish brow.

Well, teacher said they were one of man's best friends—that they eat many, many harmful insects. She said a praying mantis would be worth his weight in gold in your garden."

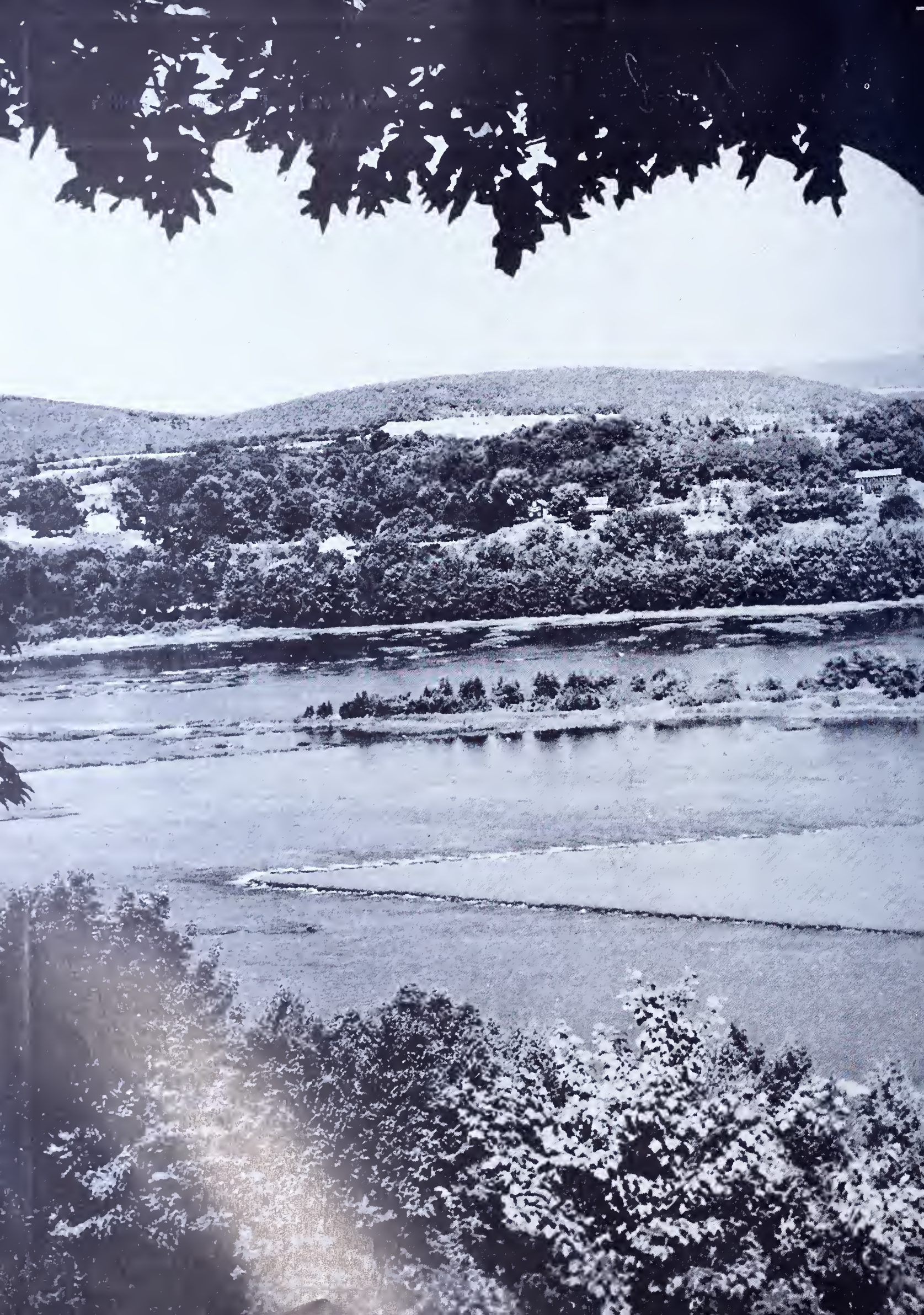
"That's true, son. And, although he can pinch a little bit if you aren't careful when you pick him up, still he won't bother you if you go about your business and don't molest him. Just notice how he perches there, with his front legs that look like hands clasped in prayer."

"Oh, yes, teacher told us he looks as though he's praying while he's waiting for other insects to come close enough for him to grab them. And that's why he's called a 'praying mantis.'"

By this time, even little Babs was no longer afraid, but was eagerly absorbing information about the peculiar insect. Somehow or other, it no longer seemed like an ugly creature, even to her.

"A praying mantis," she finally lisped, smiling up at mother while endeavoring to become familiar with two new words. "May we take him home to our garden?"

Dad, mother and Larry all agreed that they should. While the other members of the family gathered their scattered fishing tackle and what-nots, therefore, dad placed their newly found friend in an empty reel box and punched holes in the box top, in order that the little fellow might be safe and comparatively comfortable en route homeward.





P38.31

PTEMBER *PENNSYLVANIA ANGLER* 1952

H ANGUILLA · SUSQUEHANNA LAKES · OPERATION GAR · ERIE

VIL'S HORSE · MIDGET DYNAMO · BAIT BITS · FLOAT SPINNING



PENNSYLVANIA

★ *Cradle of Freedom* ★

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**PENNSYLVANIA WEEK 1952
OCTOBER 13-19**

**COMMONWEALTH OF
PENNSYLVANIA**

HON. JOHN S. FINE
GOVERNOR

*

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PENNSYLVANIA ANGLER

J. Allen Barrett—Director Division of Public Relations

SEPTEMBER—1952

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The Cover . . .

BLACK CRAPPIE, *Pomoxis nigromaculatus*, along with the white crappie, *Pomoxis annularis*, (not shown) are now fair game for anglers at any time of year. See explanatory article by Gordon L. Trembley, Chief Aquatic Biologist, Pennsylvania Fish Commission, on page 25.

Photo by Geo. H. Gordon
Penna. Fish Commission

Cover 3 Photo by Don Shiner

Back Cover Photo by Jerry O'Hern



George W. Forrest, Editor

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From the days of Aristotle almost down to our own time, people pondered over the mystery of how eels reproduce their kind, but the perplexing problem was finally solved

By WILLY LEY

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THE two most important things about the fish *Anguilla*, the common eel of rivers and lakes, were put into writing some 300 years ago by the famous Izaak Walton, in his equally famous book *The Compleat Angler*.

"It is agreed by most men, that the eel is a most dainty fish; the Romans have esteemed her the Helena of their feasts; and some the queen of palate

pleasure. But most men differ about their breeding: one say they breed by generation, as other fish do: and others that they breed, as some worms do, of mud."

The first of these two sentences may astonish some American readers, since the eel, probably because of its serpentine shape, is not valued highly as a food fish on this side of the Atlantic. Europeans may have their differences, but they are in full agreement that the eel is superb as a food fish, provided it has been well prepared. But there

are some differences concerning the meaning of "well prepared." In the northern European countries, especially along the seashore, smoked eel is preferred, while farther inland it is either boiled with dill or served cold in aspic. The fishermen along the shores of the Baltic go everybody else one better; they smoke the eel first and then fry it in butter. The fact that the eel is not a rare fish may have added to its popularity. Generally, where eels are found at all, they occur in rather large, sometimes incredible, numbers.

So much for Izaak Walton's first statement. As for the second—that is a long and complicated story, full of surprises. Since the oldest times, fishermen have found roe or milt in their fish when the season was right. But in the case of the eel, there seemed to be no such season. Nobody could truthfully claim to have seen eel roe, and Aristotle, some 2000 years ago, summed up popular experience when he stated that "the eel has no sex, no eggs, no semen and originates from the entrails of the sea."

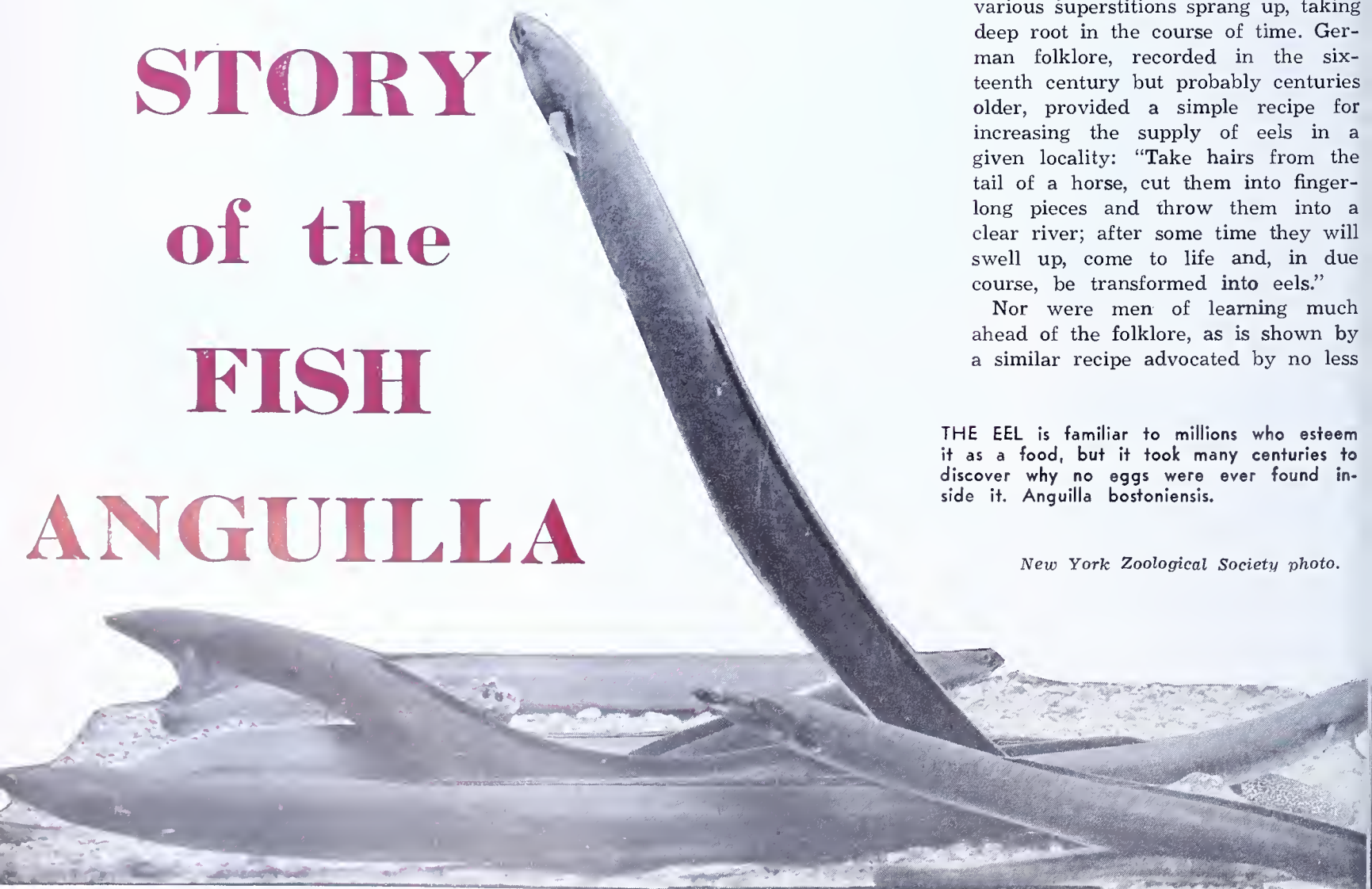
Since the problem of the eel's spawning was such a deep mystery and since the eel, on the other hand, was such a common fish, it is not surprising that various superstitions sprang up, taking deep root in the course of time. German folklore, recorded in the sixteenth century but probably centuries older, provided a simple recipe for increasing the supply of eels in a given locality: "Take hairs from the tail of a horse, cut them into finger-long pieces and throw them into a clear river; after some time they will swell up, come to life and, in due course, be transformed into eels."

Nor were men of learning much ahead of the folklore, as is shown by a similar recipe advocated by no less

THE EEL is familiar to millions who esteem it as a food, but it took many centuries to discover why no eggs were ever found inside it. *Anguilla bostoniensis*.

New York Zoological Society photo.

THE STORY of the FISH ANGUILLA



a person than the Flemish physician and chemist Jan Baptists van Helmont, around 1600: "Cut two pieces of grass sod wet with Maydew and place the grassy sides together, then put into the rays of the Spring sun, and after a few hours you'll find that a large number of small eels have been generated."

Propagation being so simple, it posed a major puzzle. Why, for example, were the Rhine and all its tributaries swarming with eels while the Danube and its tributaries were devoid of them? Dr. Konrad Gesner of Zurich, the great Swiss zoologist, decided that the water of the Danube must be "inimical" to eels and stated that eels thrown into the Danube would soon die. This explanation was probably accepted by his contemporaries; and it is safe to say that they would have disbelieved the real explanation had anybody been able to tell it.

But in spite of these fanciful ideas—that young eels originated from Maydew in moist grass and that pieces of horsehair would come to life—the weight of practical experience tended to indicate that eels gave birth to live young. Every once in a while an eel "full of tiny eels looking like twine" was caught, apparently furnishing visual proof. Unfortunately, these tiny "eels" were neither eels, nor fish, nor even vertebrates. They were intestinal parasites—worms (mostly nematodes) which infest all kinds of fishes. If they were found inside a pike or carp, nobody was puzzled for a minute; but if found inside an eel they were baby eels.

While fishermen and zoologists living inland remained hopelessly confused, their confreres living near the seashore had some additional, and apparently quite simple, evidence. Every autumn more or less fully grown eels were caught in increasing numbers along a stream, and it would be inferred that they were migrating to the sea. In spring swarms of small three-inch eels left the sea and gradually worked their way upstream. Because they were transparent at first, these young eels were called "glass-eels" along the European continental coast. British fishermen referred to them as elvers. They soon lost their transparency and became practically black.

After notes were carefully compared the question seemed nicely settled about 100 years ago. Some well-known fishes like salmon, shad, and sturgeon went upriver for spawning but otherwise were not really river fish. The eel reversed the process; it was a fresh-

water fish but went to sea for spawning. That was true for *Anguilla anguilla*, the European eel, and also for *Anguilla chrysypa*, the American eel. And the Danube river system did not harbor eels because the Danube empties into the Black Sea, where eels probably could not breed. It was not the water of the river that was "inimical"; it was that of the sea beyond the mouth of that river.

This is what natural history books, beginning about 1830, presented as the facts of the case. They still said the same thing in 1880. And still in 1900 and in 1905. But meanwhile a kind of quiet revolution had taken place, which went unnoticed for some time.

It had begun in 1856. During that year a naturalist, a certain Doctor Kaup, had caught a very curious little salt-water fish. It was interesting mainly because of its appearance. If you had some in a saltwater aquarium, you would think at first that the aquarium was empty. Looking more closely, you would see a few pairs of tiny, dark eyes apparently swimming around by themselves. Intent watching would disclose watery shades trailing the eyes. Out of water, the fish would look like a laurel leaf made of flexible glass, thin and fragile and transparent. You could place the fish on the page of a newspaper or a book and read the type through its body without difficulty.

Doctor Kaup did the usual thing. He searched the literature for an earlier description of the fish and finding none, described it himself. Following scien-



After Johannes Schmidt.

SIX STAGES in the transformation from *Leptocephalus brevirostris* (at top), found far out in the Atlantic, to the completely changed young eel found near the coast (bottom). (About $\frac{3}{4}$ actual size)

tific custom, he also selected a name. It was *Leptocephalus brevirostris*.

And that was that for some time. Another fish had been discovered, nobody knew whether it was rare or



BREEDING AREAS of fresh-water eels in the Sargasso Sea in relation to their destinations in America and Europe. It is not clearly understood why one kind goes west, the other east. Under normal conditions they do not seem to intermingle.

common. But two Italian ichthyologists, Grassi and Calandruccio had read Doctor Kaup's description and had decided they would investigate leptocephalus a little more, if and when they found the time. They later admitted that they would not have waited so long had they known what they were to discover. But they did not know, and there was always other, more pressing work. The investigation of leptocephalus was postponed from year to year. Meanwhile, they had at least learned that the fish was not rare; if needed, specimens could be obtained from Messina.

The long postponed investigation began in 1895. At first the procedure was routine. The fish were caught near Messina, and an aquarium to please the inhabitants of the local waters was prepared. Several leptocephali were put into it, and Grassi and Calandruccio

began their work by trying to find out what leptocephalus would eat. Many an investigation of living animals has come to an end because of feeding problems. But there was no trouble on that score; these little fish ate most of the food that Grassi and Calandruccio expected them to eat. They ate and swam around and appeared to be in good health—from what you could see of them.

But they shrank! The largest of the leptocephali had been 75 millimeters (3 inches) long when caught. It lost a full 10 millimeters while under observation. It also shrank in the other direction, becoming narrower and losing its typical leaf shape. And then, with suddenness, leptocephalus became an elver, a "glass-eel"!

When they had recovered from their surprise, Grassi and Calandruccio an-

nounced that Doctor Kaup's genus *Leptocephalus* was not valid. *Leptocephalus* was merely a kind of larval stage of the eel. Upon passing through adolescence to maturity, the eel returned to the sea unless prevented from doing so. The mature eel, the scientists concluded, laid its eggs at the bottom of the sea and presumably died, since nobody ever saw large eels returning upriver. The eggs hatched into the larval stage (Doctor Kaup's mistaken *Leptocephalus*) and stayed near the bottom until they were either changed or about to change into the elver stage. The elvers then swam to water of less and less salinity and finally entered the rivers.

Grassi and Calandruccio also had an explanation for the rarity of the leptocephalus stage. It was rare they said, because the larvae stayed near the sea bottom. Its was just a lucky break that specimens could be procured from the Strait of Messina, where currents often swept deep-water forms to the surface. Thus, modestly ascribing their own success to their advantageous position, the two Italian scientists concluded their report, which constituted one of the great contributions to science.

At long last the mystery of the eel's spawning and breeding had been solved.

Still, this was not the end of the story. The scene shifted once more to another year, another sea, and another expert. The year was 1904; the sea, the North Atlantic between Iceland and the Faeroe Islands; the expert, the Danish biologist, Dr. Johannes Schmidt, working for the Royal Ministry of Fisheries on board the small Danish steamer "Thor."

From the "Thor" Dr. Johannes Schmidt caught, by means of a surface net, one of the transparent laurel leaves that the two Italian scientists had made so famous. Beyond doubt it was *Leptocephalus brevirostris*, and it was as long as the longest specimens from Messina, namely three inches. Doctor Schmidt was mildly elated. A leptocephalus had come to the surface for some unknown but probably interesting reason.

A few months later another one was caught, this time off the Irish coast and again at the surface. Now it began to look as if Grassi and Calandruccio had not spoken the final word in the story of the eel. Either their findings applied to Mediterranean eel larvae only, or they had unknowingly generalized somewhere, taking a reasonable



Penna. Fish Commission Photo

EELS ARE SHY CREATURES but employees at the Pennsylvania State Fish Hatchery at Pleasant Mount, Wayne County, have taught eels to take milk from a nursing bottle. (For entire story see October 1951 Pennsylvania Angler)

assumption as a proven fact and arriving at a misleading conclusion. Doctor Schmidt reported to the Danish Government and was given the assignment to discover more about eels, elvers, and leptocephali.

Having supplied himself with all available information, he sailed on the "Thor" and told the captain how the job might be tackled. The specimens caught by him so far had been three inches long—the size at which they should be ready to begin the change into elvers, assuming that the Atlantic variety behaved like that of the Mediterranean. Obviously the larvae had to be smaller before they grew to a length of three inches. Where would the smaller ones be? Grassi and Calandruccio had implied and even stated, that with leptocephalus it was a case of "the deeper, the smaller." Doctor Schmidt's own experience had already shown that this was not necessarily the case off the coast of Ireland. How about the assumption "the farther out, the smaller?"

A nautical chart of Western Europe shows a line where the depth of the sea is 3000 feet; sailors refer to it as the 500-fathom line. West of this line is the deep Atlantic; east of it the shallow sea, which is a flooded section of the continental land mass. Schmidt found that the 500-fathom line marked approximately the area of three-inch leptocephali. He also found that they were still about that distance from land, when, late in summer, they began to undergo the change that Grassi and Calandruccio had observed and described in such detail. By the following spring, they had become elvers and had also reached the mouths of the European rivers.

Unfortunately, the "Thor" was a small ship. It could not cruise for long beyond the 500-fathom line. Doctor Schmidt returned home, and then he received a report from the S. S. "Michael Sars," a Norwegian survey ship, that a much smaller leptocephalus had been caught far out in the Atlantic. Not having a ship comparable to the S.S. "Michael Sars," Doctor Schmidt did the next best thing. He contacted all the captains of Danish vessels sailing the Atlantic and asked for assistance in the search. He "held classes" for the old salts, telling them what to look for. He promised to furnish special nets. And he begged them, for the sake of science and the Danish fisheries, to make stops in mid-ocean to see what they could catch.

Twenty-three captains promised to

cooperate. Among them, they made 550 stops to and from America to fish for eel larvae. Among them, they caught 120, a very small figure indeed by a significant result when the successful stops were located on a chart. It showed that the eel larvae seemed to have definite travel routes, that they did not just swarm all over the Atlantic.

By 1913, Doctor Schmidt had a good idea where and when to look, and he sailed on a small schooner "Margarete" on an oceanographic expedition devoted almost exclusively to one fish. The number of leptocephali increased and their individual size decreased toward the southwest. In that direction, undoubtedly, lay the true spawning ground. The "Margarete" ran aground in the West Indies after only a half year of service; but Doctor Schmidt

knew by then that the spawning grounds were in, or rather under, the Sargasso Sea. Further research was interrupted by World War I, even though Doctor Schmidt's country was neutral.

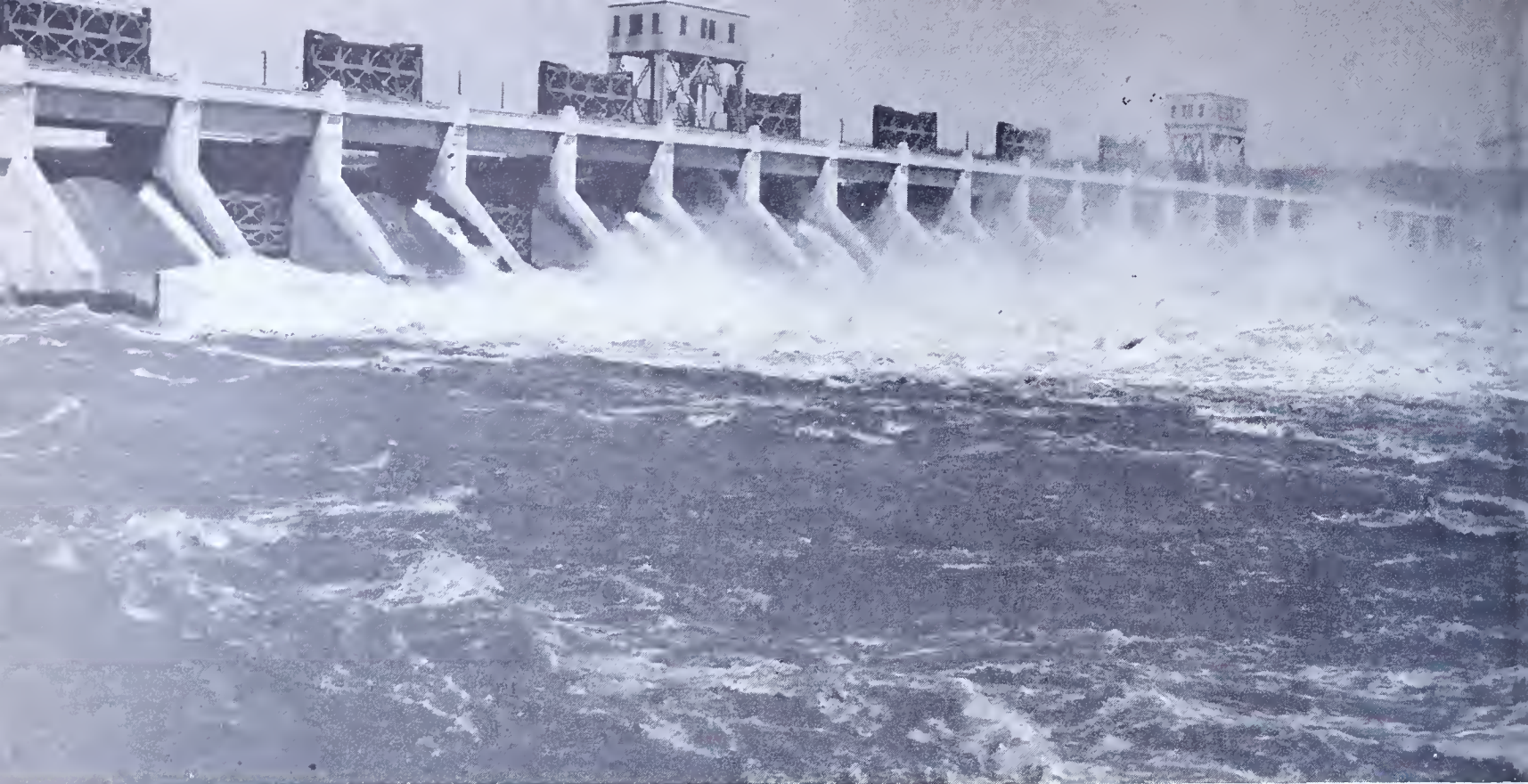
In 1920, he returned to work on the four-masted engine-powered schooner "Dana." By then he and everybody interested knew that Grassi and Calandruccio had made one mistake. The leptocephali they had caught off Messina had not hatched in the Mediterranean but in the Atlantic, like all other European eels. And like, all American eels. Meanwhile, American Ichthyologists had shown that the American eel also left the rivers for the Atlantic Ocean, that it also started out as a larval form which changed

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Penna. Fish Commission Photo

HUNGRY EELS come to surface to take food from a spoon. One is shown eating while another waits its turn. These fish, once found in great numbers in Pennsylvania waters are considered a fine delicacy in the frying pan.



Water spills through the gates at the Safe Harbor dam. Above the dam lies Lake Clarke, a ten-mile pool formed when the dam and hydroelectric powerhouse were constructed in 1932 by the Safe Harbor Water Power Corporation.

Those

IN Susquehanna's lower Susquehanna river valley, one of the most legendary areas of the State, rich in American history, lie two lakes, formed in past years by the damming of the river for hydroelectric generation. First on the scene was Lake Aldred, behind the Pennsylvania Water & Power Company's Holtwood dam and hydro plant,

built in 1910. The second, Lake Clarke, lies behind the Safe Harbor Water Power Corporation's dam and power plant at Safe Harbor, completed in 1932.

Both have provided sport for anglers and fun for boating enthusiasts and swimmers for many years. Lake Aldred extends about eight miles from Holt-

Susquehanna

For several decades the harnessing of the Susquehanna by dams for hydroelectric generation has been a controversial issue among anglers and sportsmen of Pennsylvania, at times as hot as any political election battle. A changing philosophy toward the dams stems from a growing realization, "while it is at times inconvenient to live with them, it is more difficult to live without them." Not one individual has a desire to return to the "oil lamp" era, denying present day comforts of light, heat and cooking.

In reply to many queries asking how the Susquehanna lakes received their names, we present this accurate, informative article by Mr. Crane, a former newspaper man with the Baltimore Sun during the same period your editor was police reporter for the competitive Baltimore Post.

Lakes

By WILLIAM B. CRANE

wood to Safe Harbor; Lake Clarke is a little longer, extending ten miles up the Susquehanna almost to the Lincoln Highway bridge between Wrightsville and Columbia. PENNSYLVANIA ANGLER readers might be interested in the origin of the names of the plants and the lakes.

In 1910 the late John E. Aldred, a New England financier who had successfully financed and completed a large hydroelectric project in Canada, organized Pennsylvania Water & Power Company to complete the hydro dam and power plant already started at a site occupied by the little village of Minqua, on the Lancaster County shore of the river.

In raising the millions of dollars necessary to complete the project, Aldred was forced to go to Canada. There he received great assistance from two Canadian bankers, Sir Herbert S. Holt of Montreal and Mr. E. R. Wood of Toronto. In recognition, after the dam and power house had been completed, the village and plant became Holtwood. Mr. Aldred became the first president, then chairman of the board of the power company; the lake formed by the dam was named after him.

In later years the Safe Harbor Water Power Corporation was formed, to build a second hydroelectric plant eight miles upstream from Holtwood. The corporation got its name from the village which stood at the confluence of the Susquehanna and Conestoga Creek. This name, in turn, probably came from the fact that while rocky rapids once abounded in the river bed to the north, deep smooth water marked the juncture of the creek and the river, making it a "safe harbor" for navigators of the "arks" and rafts which came downstream during spring freshet seasons.

Safe Harbor had seen better days before the power company came along; it had once been the scene of a thriving iron foundry (furnace and foundry ruins are still there) with a population of 1,200. Later it boasted a match factory. It was almost completely wrecked in the ice gorge of 1904, and when dam construction began only a few scattered homes remained.

The corporation and its dam and power plant got its name from the village. The late Charles E. F. Clarke, by then President of Pennsylvania Water & Power Company, became the first president of the Safe Harbor Corporation; its lake became Lake Clarke.

The effect of the dams was to transform what had been a sometimes very sluggish, sometimes very turbulent river, its bed beset by rocky rapids and islands of varying sizes, into two deep, placid pools. The Susquehanna River is fickle; when rain falls in quantity over its 27,500 mile watershed, or snow melts fast, water can drain from New York to the Chesapeake Bay in a raging torrent. During dry spells it flows in a comparative trickle, so that before the dams were built, it was possible at times to walk on the rocks from Lancaster to York county shores.

The power companies keep daily, sometimes hourly, measurements of



Fishing is generally good from the "stop-log" bridge at Safe Harbor. Fishermen—and women—cast into the turbulent waters which have passed through the turbines and into the tailrace below the hydroelectric plant; last year over 23,000 took advantage of the facilities which include restrooms, a picnic table and seats covered by a canopy; ice cream, cigarette and soft drink vending machines.

Typical of the water sports provided by the lakes formed by the Safe Harbor hydroelectric dam and powerhouses is this scene, taken at Long Level, Lake Clarke. Sailing, motor boating and canoeing goes on from early Spring to late Fall.



the river flow in terms of cubic feet per second (there are about seven and one-half gallons of water in a cubic foot) in order to most economically utilize the water in the operation of their hydroelectric turbines. The greatest flow recorded by them was 860,000 cubic feet per second, or 6,450,000 gallons; the lowest, averaged over a week, was 2,100 cubic feet per second or 15,750 gallons. Anyone can see that the Susquehanna is subject to tremendous variations with the seasons. Equally apparent is the effect on water sports. While it provided fishing in those days of long ago, this sport was subject to its changes. What boating and canoeing was attempted was dangerous in the extreme and while the aforementioned arks and rafts came down from the upper reaches to Havre de Grace and Port Deposit, both in Maryland, many were wrecked in trying to run the rapids.

The forming of the lakes wrought a great change for fishermen and boating enthusiasts. When Lake Aldred formed behind Holtwood in 1910, it drowned out a number of upstream rapids; the same was true of Safe Harbor in 1931.

Lake Aldred is three and three-quarters miles (2,400 acres) in area and eight miles in length and, for those who like big figures, contains over six billion gallons of water. Its

depth varies - (because of the rising river bed to the north it is quite shallow in the uppermost reaches, near Safe Harbor) but it is sufficient, for the most part, for all fishing and boating activities.

Lake Clarke is much larger. It covers eleven and a half square miles (7,360 acres) in area and is about ten miles long. It contains, roughly, about twenty-two and one-half billion gallons of water. As with Lake Aldred, the water is sufficiently deep over the greater part of its area to satisfy the needs of all sportsmen using it.

The real recreational criterion of any such body of water is not, in reality, the length or depth but, for fishermen, the number and species of the fish population and for others the recreation opportunities present. In the lakes are bass, pike-perch (locally known as Susquehanna Salmon), catfish, perch, rock bass, crappies, sunfish, carp, and other species. While the present fish population is not known, the lakes are stocked each year by the Pennsylvania Fish Commission. Last year (1951) in Lake Aldred—6,000 yellow perch, 6,000 black bass, 3,200 catfish; in Lake Clarke—12,000 yellow perch, 17,000 black bass, 6,000 catfish, were stocked.

The power companies make annual contributions to the Fish Commission

to assist in keeping these lakes regularly stocked with fish, while vast sums of money are spent by the companies in providing fishing facilities for the benefit of anglers.

A conservative estimate of the number of fishermen using the lakes during the fishing season is possible. In 1951 the Holtwood plant was closed to fishermen because of construction work on Penn Water's expansion of its steam generating plant; no record was kept of those who fished below the dam, outside the plant area. However, in 1951, 23,513 fishermen took advantage of the facilities provided for them at the Safe Harbor plant.

It is probably safe to say that for every visitor to the hydro plant five fished from boats or along the banks. A conservative figure would be 100,000 who, it is hoped, wet their lines successfully.

Shortly after the war the Companies, seeking the cooperation of fishermen, organized the Hydro Fishing Club. This was set up in cooperation with the York County Sportsmen's Clubs and the Federated Sportsmen's Clubs of Lancaster County. There are no dues; individuals wishing to join submit applications to officials of the club in the county in which they live. If admitted,

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Built in 1910, Pennsylvania Water & Power Company's Holtwood dam and powerhouse transformed the Susquehanna's shallow and rocky river bed into the placid waters of Lake Aldred. This aerial view shows, in the foreground, the steam generating plant which uses "river coal" dredged from the lake bottom, as its fuel; behind it the hydroelectric generating plant and the dam. Along the cut in the hillside, across river, runs a transmission line to Baltimore. Other lines bring power to York, Lancaster and Coatesville.



By **ALFRED LARSEN**

Fishery Biologist

Pennsylvania Fish Commission

Penna. Fish Commission Photos by
Geo. H. Gordon

Operation "GAR" in Presque Isle Bay

WHILE making observations of the spawning areas of game fish in Presque Isle Bay, Lake Erie, during the early part of June, 1952, large numbers of northern longnose gar (*Lepisosteus osseus oxyurus*), more commonly known as "garpike" or "billfish," were seen—particularly in the vicinity of the western end of the bay.

In order to reduce their numbers, personnel of the Erie Hatchery used a 225-foot drag seine with 1¾-inch mesh in the area where the gar appeared most numerous. Seine hauls up to 800 pounds were recorded. The gars ranged in size from fifteen to forty-four inches. Small numbers of pumpkinseeds, yellow perch and largemouth bass were captured along with the gar and released. All of the gar were destroyed.

Several dozen gar of various lengths were opened to examine their stomach contents which included the following: yellow perch, two to seven inches; largemouth bass, four to six inches; small bullheads; pumpkinseeds and golden shiners. A number of female gar examined contained eggs.

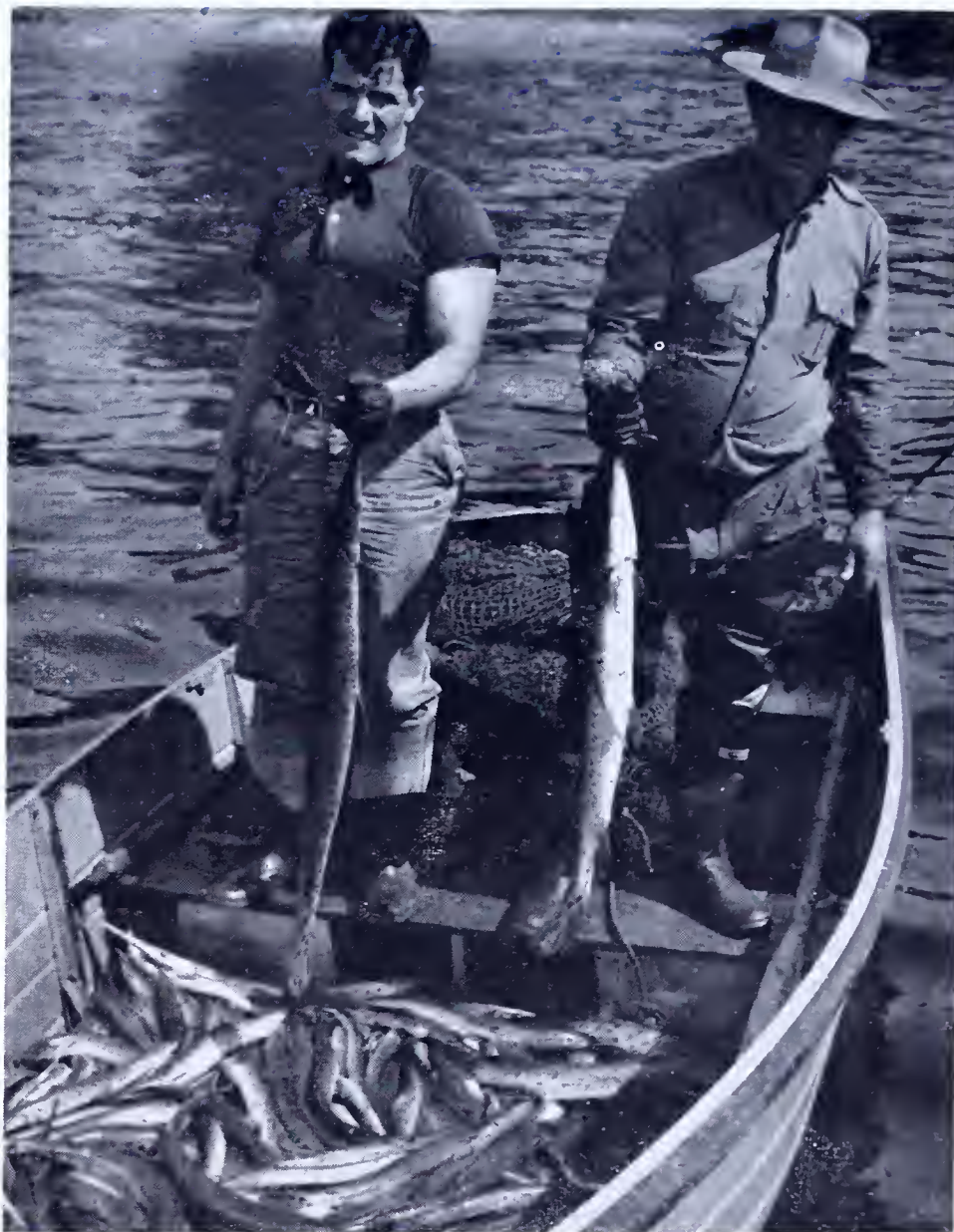
The longnose gar is distributed throughout the Great Lakes Region and the Mississippi Valley. It frequents the quiet, warm waters in lakes and large streams. It lies basking near the surface at times, and appears much like a log in the water. Sluggish by nature, it can move with considerable speed when alarmed or after prey.

The longnose gar attains a length of over five feet. The spawning season is in the spring, usually from the latter part of May to the middle of June; and the gar is usually found in the shallow, weedy areas at this time. It is the enemy of nearly all other fish and is especially destructive to minnows and the young of other fishes.

The gar is well protected by its thick ganoid scales. If one has ever attempted to skin a gar, he can readily understand why the gar has few if any enemies.

Gars have little if no commercial value. They are considered edible, although their eggs are toxic to many mammals including man. The jewelry and novelty trades have made use of the skin of the gar to a limited extent.

SEPTEMBER, 1952



▲ Hatchery personnel, Superintendent Ed Hahn (right) and Ray Grygo with gar specimens measuring 43 and 44 inches respectively.
▼ Haul of longnose gar made with one drag of seine. Approximately 800 pounds.





Boating on the beautiful Lagoons which wind through the interior of the Presque Isle State Park. Fishing competes with the scenic beauty of this fine recreation center.

FOR the most part, the recreation centers of the Commonwealth are confined to areas which are enhanced by "Penn's Woods," but the one spot which provides more in the way of recreation, for those who enjoy fishing, boating and swimming, is far removed from the beautiful wilderness from which the Keystone State derived its name. This area is a narrow neck of land about 30 miles wide, bordering on Lake Erie and squeezed between the neighboring states of Ohio and New York.

Located about midway in this northwestern extremity of the Commonwealth is the third largest city in the state, Erie, "The Gem City of the Great Lakes." One of the natural features which makes Erie such a wonderful resort and recreation center is the completely protected harbor formed by Presque Isle, a peninsula that stretches about 15 miles along the shores of Lake Erie and juts about two miles out into the lake.

On this beautiful sand-covered playground is located Presque Isle State Park, which offers visitors free bathing facilities complete with bath-house service and picnic grounds complete with free stoves and shelters. In addition to the fishing provided by Presque Isle Bay waters on one side and Lake Erie on the other, the park is almost divided for over half its length, by a series of ponds known as the Lagoons. There is no more picturesque spot any-

Erie—Fishing and Recreation Center of the Commonwealth



By JERRY O'HERN

where on the American continent than can be viewed from a canoe trip on these ponds.

There are more different kinds of fish taken from Lake Erie and Presque Isle Bay than any other waters of the Commonwealth, with some 25 species making up the list of fish taken both by sports fishermen and commercially. Blue and yellow pike and yellow perch make up a large proportion of fish taken while the whitefish is important to the commercial fishermen.

Other species which make up catches

PENNSYLVANIA ANGLER

out of the port of Erie are: large and small mouth black bass, rock bass, crappie bass, white bass, bluegills, sunnies, great northern pike, muskellunge, fresh water drum, gar pike, carp, herring, sturgeon, bull heads, steelhead trout, eel pout, gizzard shad, alewife and mooneyes.

In the spring of the year another very delicious fish is caught in large numbers at the mouths of the streams flowing into Lake Erie, and that is the smelt. At the same time there is a great influx of Buffalo suckers in the small streams where they go to spawn. Fishermen come from all over the western end of the state to enjoy this run of suckers.

Cat fish and sturgeon are fished for mostly with night-lines which in some cases are nearly a mile long. This type of fishing comes more or less under the heading of commercial fishing as the fish are shipped to the New York market. The sturgeon catch is limited to a few fish each year of late, although at one time they were taken in such large numbers the roe was removed and the carcasses piled up like cord wood along the shore to rot. The roe of these fish is more valuable than the fish commercially sold as caviar.

BLUE pike fishing probably furnishes the largest number of fishermen with the sport as well as providing a delicacy for the dinner table. Nearly 50 party boats operate out of the Erie harbor, taking fishermen to the "pike grounds" some four or five miles off shore in Lake Erie. These boats operate mostly in the evenings from seven till eleven but when the fish are biting they make a second trip shortly after midnight. Pike seem to bite better in the evening. Day trips are mostly restricted to week ends. Blue pike are considered the finest eating fish taken in Lake Erie.

Yellow pike and smallmouth bass are caught along the stony shores of the lake both east and west of Erie, and are taken successfully by trolling with a june-bug spinner and night crawlers or minnows. Yellow pike, commonly known as walleye, run as large as six or seven pounds while the smallmouth bass run as large as five pounds. There are numerous boat liv-
eries along the lake where outboard motors and boats may be rented.

For those who prefer to fish with fly rods or spinning gear the shores of Presque Isle Bay and its many adjoining lagoons and ponds affords the



A pleasure cruiser and a number of houseboats on Misery Bay, near the entrance to the Lagoons. It was in this small body of water where much history of the War of 1812 was written. Perry built his ships near this site to meet the British. Perry's flagship the Niagara was finally sunk in this spot, was later raised and now on exhibition near the Public Dock at Erie.

Yachts moored at the Erie Yacht Club, on Presque Isle Bay.



light tackle enthusiast with perfect conditions and plenty of cooperative blue gills, sunfish, strawberry or calico bass (crappies), rock bass, smallmouth bass and the ever popular yellow perch.

The Presque Isle Bay yellow perch are fast becoming known for their large size, which is the result of a program put into action a few years ago by the Pennsylvania Fish Commission. The native perch were about eight inches long and seemed to be getting smaller as the number increased. The Fish Commission commenced importing perch eggs and the results of this program are now being realized with 12 and 14 inch perch now common.

These fish provide the major sport for ice fishermen on frozen Presque Isle Bay each winter. Fishing provides recreation in the Erie area the entire year. Thousands of fishermen brave winter winds and near zero temperatures, to enjoy this very popular winter sport as well as providing their families with these very delicious, tasty fish.

The bay also provides the big-game for the fishing fraternity with a good supply of great northern pike and muskellunge as well as large mouth bass. The pike and bass provide early summer fishing while the muskies seem to prefer to waiting for cool fall weather until they start to hit. Record breakers among pike and muskies are recorded by Erie fishermen each season with many down-staters taking the big fellows.

Presque Isle Bay, nearly eight miles long and two miles wide affords a completely protected harbor for the mooring of both large and small boats as well as providing an ideal spot for both yachtsmen and small boat owners to enjoy both sailing and motor boating. With the entire area of the Bay protected from the Lake itself by the Presque Isle peninsula this large body of water is the scene of many colorful regattas and boat races each summer.

Nearly 20 miles of white sandy beach along Presque Isle State Park with free picnic facilities and bathing attracts thousands of persons from all over the Commonwealth as well as adjoining states throughout the vacation season. Motels, trailer camps, lake front hotels and cottages provide housing for those who come to enjoy Pennsylvania's great recreation center. Whether their choice is fine fishing, sunbathing, swimming or boating, its a combination which offers an ideal vacation for any family group who enjoy the great outdoors.



A party boat about to leave the Public Dock at Erie for a trip to the "pike grounds" some five or six miles out in Lake Erie. These boats leave the dock each evening at seven and return about midnight. They are equipped with flood lights to attract the fish after dark. There are about 30 of these boats presently operating out of Erie. They accommodate from 30 to 80 fishermen.

Action aplenty during one of the heats of the annual Boat Races and Regatta sponsored by the Presque Isle Boat Owner's Association. This event draws racers from the tri-state area of Dunkirk, N. Y., Chautauqua Lake N. Y., Conneaut, Ohio and Erie. The 1952 event had an entry list of over 50 boats.



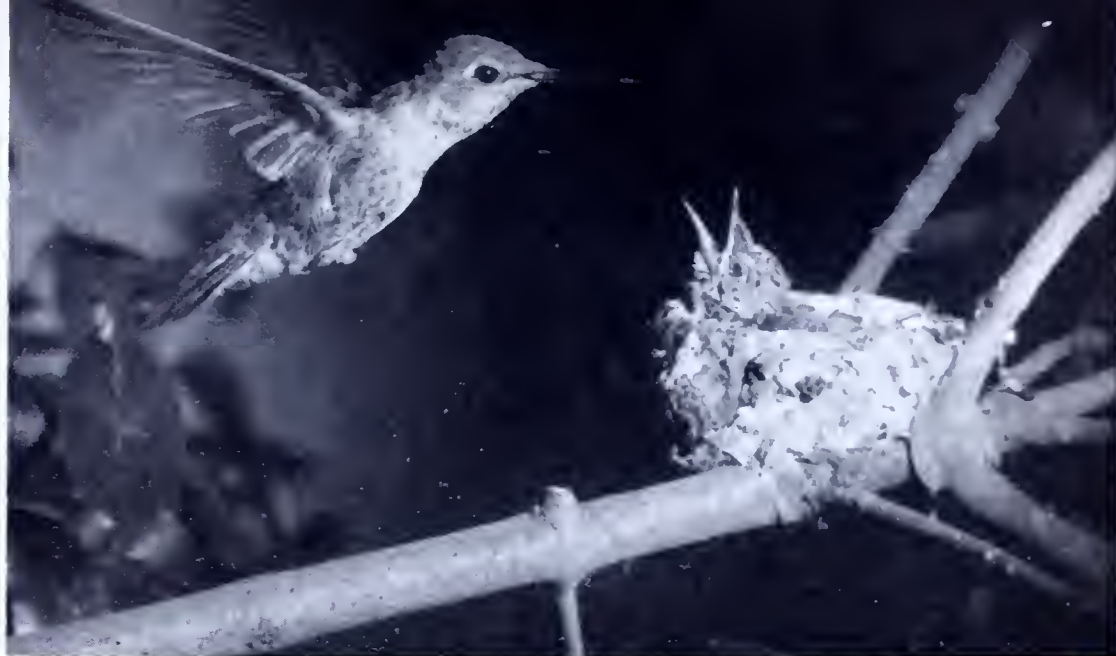
Folks enjoying boating and swimming along the shores of Presque Isle State Park. The skyline of the City of Erie is in background.



Midget Dynamo

By

Margaret M. Thornburgh



Fred H. Wylie photo.

1/5000TH OF A SECOND, a special camera technique, and an expert photographer are what it takes to stop a hummingbird's wings in their flashing flight. These smallest of birds prefer to build their nests on limbs which overhang a stream.

THE emerald-green bullet that just passed you, headed upstream has a hazy blur of wings on each side. It stops in mid-air, poised on an invisible perch, goes backward, or maybe—and many an observer will swear to it—even sideways!

Did you know that hummingbirds, like fishermen, have an affinity for running water? Though obviously not for the same reasons. The hummer's favorite flowers grow along the creek banks, and a stream often provides the only open space in woodlands and thickets.

Like jet-propelled helicopters they dart and pause, alternately dash and hover, as they zoom from one blossom to another. Their taste for sweets is an acquired one, say the experts, and it's usually the bonanza of insects in and around the flowers, which attracts them. Since their principal diet consists of "no-see-ums" and similar pests, and since one hummingbird consumes an incredible number of such annoyances, every angler will appreciate this contribution to his comfort!

Straddling that small limb overhanging the stream is a mossy knot, about an inch and a half across, and an inch or so deep. Outdoor-trained eyes will take a second look and discover that it isn't a part of the tree branch at all, but a minute nest constructed of plant down and lichens. And that strategic material which holds it together and in place? The silk of spider webs! The two white eggs it holds are no bigger than peas.

The handsome male is not much help when it comes to building the nest and feeding the young. Could be that his gleaming, iridescent feathers make him too conspicuous for the safety of his

family; for his ruby throat, which seems almost black in shadow, becomes shining and metallic, color without equal, when touched by sunlight.

The grotesque mites that hatch from the tiny eggs grow so rapidly that they soon crowd the nest. Their feeding by the female has to be seen to be believed. Placing her long, needle-like bill in the short, wide-open, upturned beak, she thrusts its full length down the throat of her offspring. Since the babies are about the size of bumblebees, it seems miraculous that they can

survive such treatment, much less thrive on it!

Though each weighs much less than one ounce, these midget dynamos do some marathon traveling. In the late summer they head for the south, cross 300 miles of the Gulf of Mexico, and spend the winter in warm, flowery places like Guatemala and Costa Rica. Spring brings the featherweight flyers north once more, across those long miles of open water, and late April or early May finds them here again, buzzing your favorite stream.

MISSION ACCOMPLISHED! Though the bill is longer than the baby this sword-swallowing act is just a regular part of the feeding routine. The young hummers not only can take it, but beg for more.

Fred H. Wylie photo.





LOVE AT FIRST SIGHT when male mantis moves in on female unaware it will be his last move!

feed. The mantis is NOT poisonous in any way, is easily domesticated and makes an interesting pet.

Inasmuch as it has an insatiable appetite and is entirely carnivorous, lucky, indeed, is the gardener who is host to a number of these insects. There is no way of estimating the number of grasshoppers, crickets, roaches, flies, and other injurious insects that several mantis will eat in one season.

One season a case of mantis eggs hatched on my front porch and a number of the insects remained there during their entire life span—from early spring until late fall. When first noticing the little creatures they were not much larger than mosquitoes, were coal black, and busily engaged in eating plant lice which were about to kill my poinsettia.

They grew amazingly fast and changed from black to a soft green color. One very fine female, which I christened "Della," became a favorite

DEVIL'S HORSE

By J. CASEY

This grotesque creature of the outdoors looks more like the Gentleman with the cloven hoof himself than his steed. Much like the famed BLACK WIDOW spider, Mrs. Mantis has crude but subtle methods of ridding herself of an undesirable husband. Since she cannot render the quick sting of death, she simply eats his head!

rear horse, and devil's horse. The latter is the name by which the insect is best known.

Perhaps no superstition is older or more widespread than the belief that the devil's horse when assuming a kneeling position is either seeing an angel or hearing the rustling of one's wings. Other odd beliefs are that the insect will spit poison right into your eyes, causing instant blindness; or if swallowed by either man or beast, sudden death will follow; or if taken in the hand of a lost person the pious insect will point to the road home!

In reality this ferocious looking, grotesque insect when in the prayerful position is merely awaiting an unsuspecting creature upon which it may

of mine and soon learned to come out from hiding when I called her as it meant a delicious morsel of raw hamburger meat. I was always sure she would be hungry and eagerly accept my food offering. After each meal she carefully cleaned the long forelegs, removing any tiny food particles from the saw-like teeth with which she held her food. Then by licking the tiny forefeet, much as a cat, she washed her bright little face. Turning her head from side to side—an accomplishment which few, if any other insects are capable of doing—she looked very cunning while preening herself.

Della and some five or six of her sisters continued to gorge, groom

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HONEYMOON IS BRIEF. While actually in process of mating, female literally eats the brains out of her spouse. It comes under the heading of mental cruelty.

COUNTLESS numbers of very useful and highly interesting insects have been ruthlessly destroyed because of superstitious beliefs. I am referring to the *praying mantis*. No creature has been more unjustly maligned, the basis for so many superstitions, or has more cause for libel suits against mankind, than the odd insect variously known as *soothsayer*,



BEHEADED MALE, like beheaded chicken, continues to move about. Displeased with this, female then tears legs off late husband, snaps his back, flings him aside.

themselves and grow more beautiful. They had now, late summer, attained a length of about three and one half inches, and the bodies were quite plump. I had not seen a male mantis in the vicinity since late spring.

One morning in late fall, romance—in the form of a very shy, slender, male mantis entered Della's life. It must have been love at first sight.

A few hours after mating, I found Della eating the brain (if any) of her mate. The courtship, wedding and honeymoon had been very brief.

After consuming the head of her erstwhile mate, tossing the body to the ground, Della made her customary toilet. Glancing downward, evidently displeased with the beheaded male crawling about with forelegs raised in prayerful position, the self-made widow quickly descended, grabbed the hapless creature viciously tearing off each leg, and as a final gesture of utter contempt, she snapped the back in a sickening manner.

Apparently satisfied with a deed well done, Della climbed up twig and joined two of the other "girls."

Selecting the same twig containing the old egg case (seen at top) that she hatched from, upon which to lay her eggs, Della finished another cycle in her life. The eggs, encased in a foamy mass after being exposed to the air for a short while hardened, are so perfectly insulated the winter's cold does not affect them. Egg cases are secured to twigs, limbs and walls.



THE DEED DONE, our Lady Macbeth climbs twig, joins two of the girls.



EGG LAYING is another cycle, eggs are encased in foamy mass which hardens when exposed to air. Eggs are secured to twigs, limbs or walls.

Bits About Bait

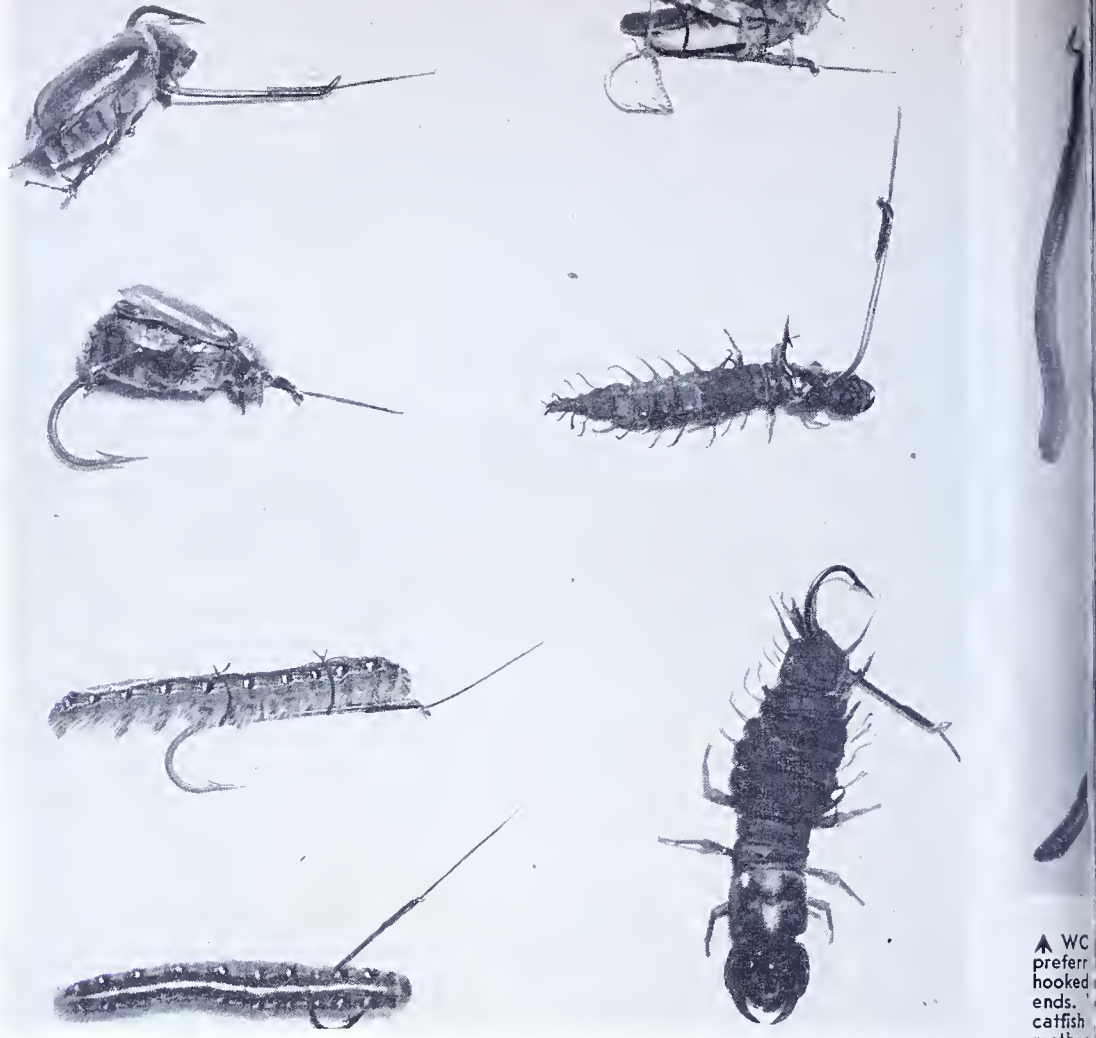
By DON SHINER

BAITs frequently used by fishermen are found in variety, include more than just the common angle worm, minnow and hellgrammite. It includes grub worms, salamanders, tadpoles, water-worms crickets, frogs and a host of others. And there are times when it requires a variety of baits to produce fish for the creel.

Any angler who concentrates on any one bait to the exclusion of others is often left holding an empty bag and is missing out on a lot of fun. Trout, bass and panfish are caught on a great variety of baits, preferring one over another on one occasion, but soon turning their fancy toward another. The angler should therefore acquaint himself with the great assortment of baits available to him and should become familiar with the methods of placing these on a hook.

Shown here are the more common baits. Some are the natural food, others are seldom encountered, all will catch fish and have been known to produce nice catches. Presented in a natural manner, bait fishing can be as scientific as the use of artificial lures.

Look over the baits shown here and some of the methods used in placing them on a hook. Better yet, tear out this article and keep it handy in your tackle box so that you become thoroughly familiar on all phases of bait and bait fishing.



▲ June bugs are good baits for trout, fallfish and panfish. Top of left column shows two methods of placing these on a hook. Don't overlook the various kinds of caterpillars, just about all types of fish will go for these. Grasshoppers, good baits for late summer are best hooked longitudinally through body or 'wired' to a hook and fished like a dry fly. Hellgrammites, very popular baits for bass and trout, are best hooked under the hard collar just to the rear of head, or lightly through tail. Some prefer to remove head and collar and turn hellgrammite inside-out.

▲ WC
prefer
hooked
ends.
catfish
methoc

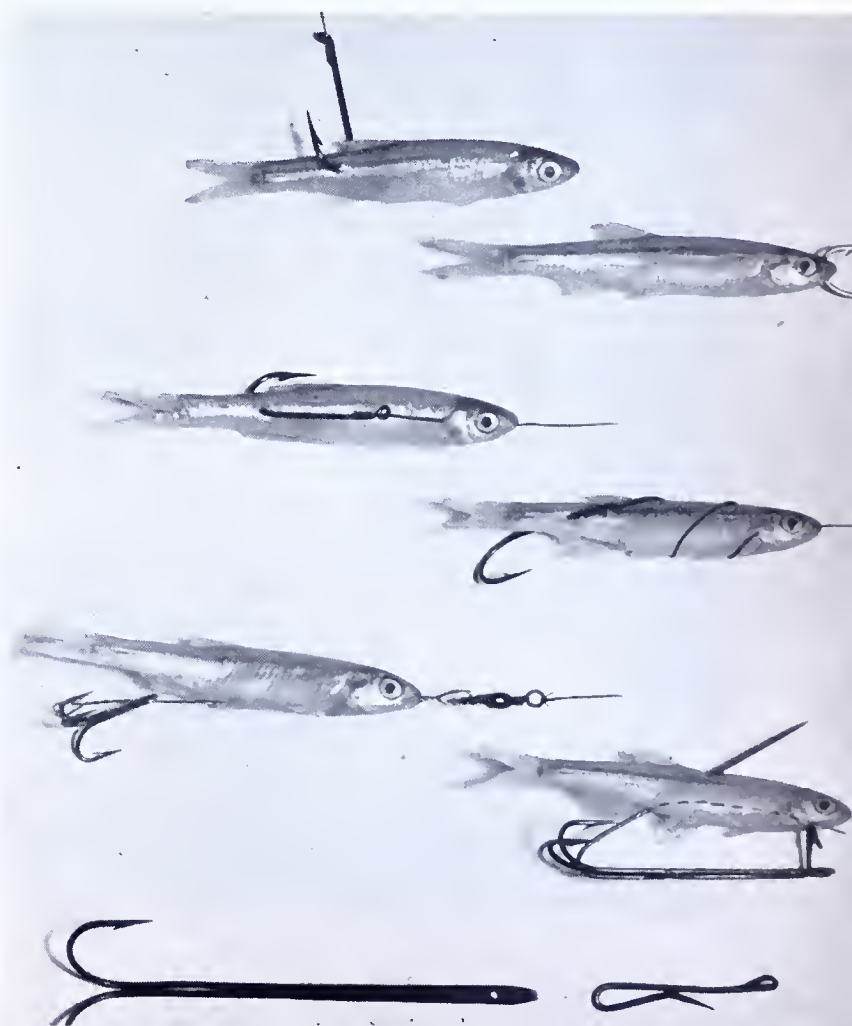
▼ CORN, DOUGH BALLS and PORK. A great many anglers use soft sweet corn or dough balls for carp. Suckers are also caught on these baits. While pork rind is frequently associated with spoons and spinners, bass and pike are caught on a piece of rind skittered among the weeds and lily pads.





Right Above—CRAYFISH. Here are four methods of placing crayfish or crawdads on a hook. Use this bait at night when crayfish are normally active. Trout like 'em, so do bass and walleyes.

▼ **MINNOWS.** There are a dozen methods of placing this bait on a hook. Some of the best are shown here. Top two methods are best when still fishing with minnows. Next four are methods for casting and trolling with this bait. Various minnow-pins or rigs are also made, two of which are shown here.



FLOAT

FISHING

By JOSEPH D. BATES, JR.

With Spinning Tackle

ONE of the questions invariably asked about spinning is "Can artificial flies be cast successfully with spinning gear?"

The answer is an emphatic "Yes." Whether this equipment will cast flies more advantageously than will a fly rod depends upon fishing conditions. Ordinarily, I prefer the fly rod. But spinning tackle frequently comes to the rescue when nothing else will cast far enough or will hook fish quite as well. The spinning rod often helps us to put a fly in places we can't reach with a fly rod; perhaps because cliffs prevent making a satisfactory back cast, or because trees or bushes are

in the way. With spinning tackle, no back cast is necessary. With spinning tackle, almost anyone can cast flies a hundred feet or more; easily, and with no false casting.

Also, the fine spinning line offers less drag than the necessarily heavy fly line. Spinning tackle can keep a fly in a current and can work it naturally, even when the current is far across the stream, with varying currents in be-

tween. It can drift the fly (or nymph or tiny bait) with the current, on the surface or as far under water as the angler desires. It must, however, let the current work the fly. If it is necessary for the angler to work the fly, then spinning tackle must bow to the fly rod.

The secret of using these tiny artificials in spinning lies in the "Buldo" plastic float. I mention the "Buldo" in preference to similar brands because it is smoothly polished, with no rough edges; because it is so transparent that fish never seem to notice it, and because its plastic cap (for adding water) is kept from becoming lost by being anchored to the float itself. These little caps are easy to lose, and sometimes fly off in casting. For these reasons, a dime or so extra for the higher quality of the "Buldo" is real economy in the long run.

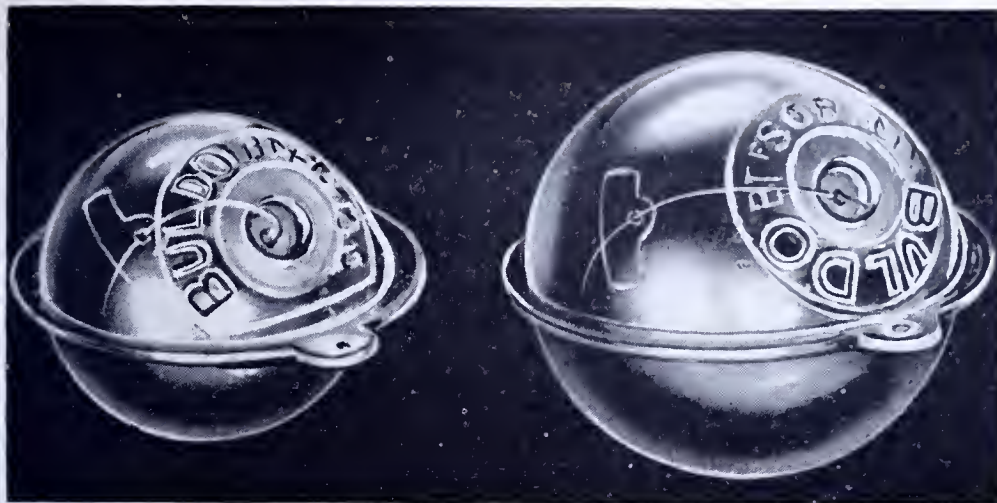
The "Buldo" float is made in two sizes, as shown. It can be filled partly or wholly with water, thus providing a casting weight to carry out the nearly weightless fly. Its weight can be varied, depending upon how much water is put in it. When partially filled, it will float. When wholly filled, it will sink and will drift down in the current, rather than falling to the bottom, as metal weights will do.

The two principal ways of using the "Buldo" to fish flies, nymphs or tiny baits are shown in the drawing. The first of these calls for fastening the float to the end of the monofilament spinning line (with a "Clinch Knot" or with a large "Perfection Loop Knot," as shown). One or more flies, each on its own dropper, are fastened to the line at intervals of a foot or more



The author rigs a float and wet fly combination for spinning tackle.

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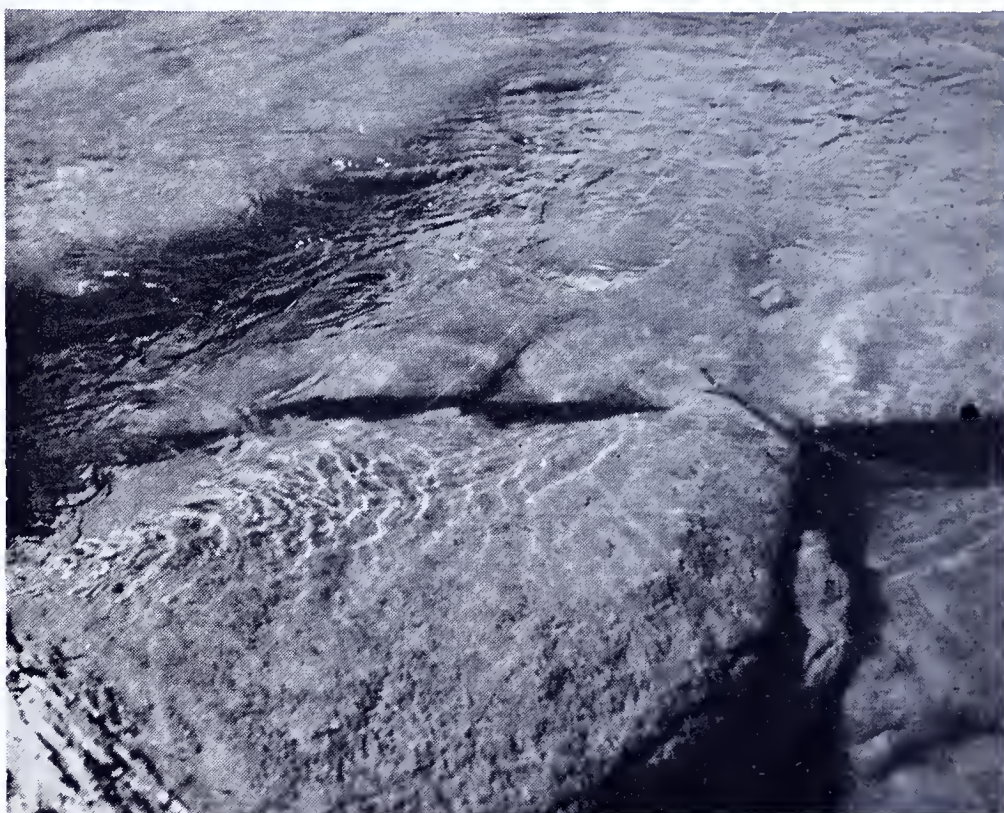
◀ Two sizes of the BULDO plastic floats are distributed by Rockland Tackle Co., Suffern, N. Y. 15/16" and 1-3/16" in diameter.

▼ WHERE IS THE PLASTIC "BUBBLE"? Note how the BULDO float or "BUBBLE" seeks the main current of the stream, allowing bait or fly to drift where big fish habitually await food.

apart above the float. One way to do this is to splice the line with an added two or three foot length by a "Barrel Knot," leaving a long end for the dropper. I prefer this to tying a "Dropper Knot" in the line because it is less noticeable and is fully as strong. When the "Buldo" is made to float, it is well to attach a small split shot to each dropper to make the fly sink. When the "Buldo" is entirely filled, this usually is not desirable.

The second method, as is shown by the drawing, is most often used for live bait fishing. It calls for tying the float between line and leader, perhaps with a split shot or two on the leader to keep the bait down in the water. This latter method is excellent for bait fishing, but is less advisable for fishing flies because it is harder to hook fish on artificials when the float is between the angler and the lure.

Experience shows that, with the second method, one can hook more fish when the weight of the bait (and lead, if any) is so balanced with the amount of water in the bubble that the "Buldo" barely will float. Thus, when a fish takes the bait, he feels little or no resistance and is less apt to disgorge the bait.

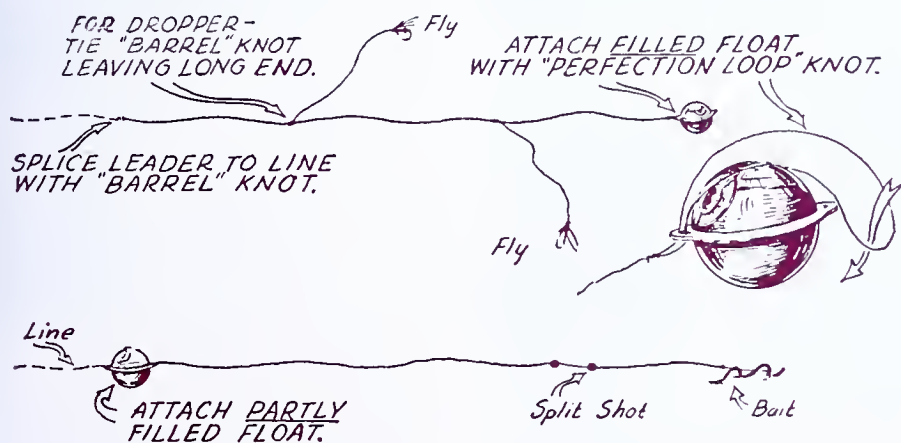


Float fishing with spinning tackle is excellent for handling small wet flies or nymphs. We can rig the tackle as in the first method, letting the "Buldo" sink or float as desired. I like the

floating way best because the angler can watch the "Buldo" and can strike whenever it pauses or bobs peculiarly in the current. Fish often take artificial nymphs very delicately, so the slightest unusual action of the float signals that one should set the hook. It may be a false alarm, but it does no harm to strike lightly anyway.

A very valuable advantage of the method is that runs on the far side of the stream can be fished efficiently, since the fine line rarely diverts the float from the current. This method also works wonders in shallow streams, or when there are roots or weeds on the bottom. With it, flies or baits can be worked around rocks and into pockets where it would be next to impossible to use anything else.

(Turn to page 27)



Two methods of rigging the "BULDO" plastic float.

DON'T TAKE HIM - GO WITH HIM !

Every DAD should read this practical chunk of philosophy written by a father for the guidance and help of fathers with on-coming angling sons. We're certain Mr. Schuyler would include the daughters as well.

By Keith C. Schuyler

EVERY man who considers himself an outdoor sportsman wants his son to become one too. Too few fathers, however, are willing to spend the time or adjust their patience to the extent necessary for this happy development.

It is a mighty serious and painstaking business.

By trial, error, and considerable perseverance (supplemented by timely suggestions from the lady of the house), I have hit upon a system. Success of the system, whether you or I use it, depends upon observance of one simple rule . . . Don't take your boy along; go with him.

Boys are little people, full of faults, fun and wild ideas. Each is a distinct personality. Although their opinions and observations are immature, they nevertheless have them. Their growth and maturity depends upon you.

They learn by example, but unless you are aware of their attempts to follow your example, they soon become frustrated and disinterested. This results in some fathers saying, "Gosh, I try to make a sportsman out of Bobby, but he just doesn't seem to have it."

Have what?!

The only thing that Bobby lacks is a dad who will spend the time to go with him. Yes, he takes Bobby along at every opportunity, but the boy's interest in what his father is trying to teach him is only equal to his father's interest in how well he is learning.

Since this is an angling magazine, we will consider only the fishing phase of a boy's outdoor education. Anyway, a boy is such a complicated mechanism of mischief, energy and affection that it would take many times the pages of this entire issue to consider every facet of his personality.

You have undoubtedly found that your normal son is wild with joy when you promise to take him fishing. He counts the minutes until the day when you step on the starter to head for the nearest fishing spot. You cannot avoid his enthusiasm, and you find yourself

somewhat excited at the prospect of fishing with your own son . . . a dream come true.

You arrive and set up your tackle with a new eagerness. Maybe you bait his hook the first time. Then you show him the best spot in the stream, warn him to be patient, give him an affectionate pat on the shoulder and tell him to holler if he gets one on that he can't handle. Then you steal away so that he can work it out himself; just keeping him within sight or hearing distance in the event of trouble.

Twenty minutes later he is tossing rocks and sticks into the water.

You go tearing back with fire in your eye, slow down, take a deep breath, then gently reprimand him. Again you explain the need for quiet, untangle his tangled line and get him off to a fresh start.

Fifteen minutes later you sneak back for a check and find him dangling by his legs from a limb out over deep water.

This time you lose control, make dire threats, and maybe you even cuff him up a bit. He bellers and the tears stream down in very unmanly fashion. Finally he goes back to his fishing rod, chained by your command, and you move on to a quieter spot . . . now thoroughly disgusted. You swear that this is the last time you are going to spoil a fishing trip by bringing that brat along.

Any of this sound familiar?

Of course you do take him along again. And, finally, after a fashion, he gets the hang of things and develops into somewhat of an outdoorsman. Or, he quits pestering you to take him along and goes back to his comic books and pinball machines for entertainment. This isn't the way you wanted it, but at least you can now fish in peace.

"Bobby just doesn't seem to have it."

It isn't necessary that every boy de-

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velop into a fisherman. But it certainly can assist him in life if he does become one and gets everything out of the sport that is available. Every boy at least deserves the right to learn about nature first hand, and there is no finer way than by fishing.

But, to start him off right . . . go with him.

First, be sure that he has the proper tackle. The best way is for him to earn the money to buy it himself by doing little duties around the house if he is very young, by saving, and if he is a bit older, through a newspaper route or other job that boys can do to earn money.

Pride in ownership is what makes us buy automobiles and guns and fishing rods that we cannot afford. These little men who call us "Dad" are built along the same lines.

Above all, don't give him some cast-off tackle that you wouldn't use. If you have a spare rod and tackle that are suitable, that's fine. Give it to him, or let him earn it.

Then plan a trip for him.

Plan the trip to be just as long as he wants it. At first, your fishing excursions will be of short duration. Young minds do not have lengthy powers of concentration, and a small boy's span of interest is brief. It is of frequent recurrence, but it is of short duration.

If you plan to fish also, place this far down the list in importance. Stay with your boy. Show him the things that he should know. See through his eyes work with his hands. But don't become so overzealous that you spoil everything by doing the actual fishing for him yourself.

Don't be misled by sentiment and allow him to keep an undersized specimen or an out-of-season fish. Make him throw it back. Show him how to release the fish gently or to cut the leader on a badly hooked specimen. Sportsmen are made, not born.

Unless the fishing is very good, your young son will tire soon of it. Watch for the signs. Then either take him home or suggest something different . . . such as looking for lizards or snakes or turtles.

Explain things to him; answer his questions. And, if you find that you are getting stuck for answers, get some books that will provide the information. Your son's questions can easily lead you into a completely new appreciation of the out-of-doors if you will make an earnest effort to seek out the answers.

These fishing trips will gradually become longer. And, at last the day will

come when you will be proud to take your son along with the men.

Meanwhile, explain to him that he cannot go along on your regular fishing expeditions until he has learned his sport better. It will provide an incentive and build up an anticipation for him equal to that of his first fishing trip.

Young boys can easily spoil a fishing trip for their father and make every other member of the party uncomfortable if they are not experienced enough to be along in the first place. But when you are involved in such an experience, don't blame the kid no matter how obnoxious he appears to be. It is his dad's fault.

Mothers need instruction along these lines, too, so that they do not insist on Father taking Bobby along before he is ready . . . before Father has gone on many trips with Bobby.

By what authority do I make these recommendations?

Well, aside from the fact that I was once a little boy myself, I have three young sons. Only one of them is old enough for me to go fishing with, but the results of following my own advice are evidenced in the photographs accompanying this article.

"Chippy," as we call him since he has the same name as his dad, took me fishing for the first time when he was six years old. We went to a little trout brook near home and used my fly rod. As the trout run very small on the average, we used a dry fly with a bit of worm attached. He caught about ten brook trout in two hours, of which only two were barely legal.

Barely legal, but these two little brookies are prize specimens to a six-year-old "Chippy."



But he had the time of his life. Last spring I promised him only that I might go fishing with him if I returned from a regular first-day expedition in time. If you remember, it was very windy on April 15, and our party returned home early with a fair catch of stocked trout.

So, Chippy took me out late that afternoon.

He brought back a rainbow trout seventeen inches long and a brown trout that measured fourteen inches . . . both native trout. Both were caught on a steel telescope rod that he bought with money "earned" by helping his mother.

We've been on other trips together that haven't been quite so productive from the standpoint of fish caught. But he has brought home a succession of salamanders, newts, frogs, pine cones, snake skins, etc., that are just as important to him today.

There are times when I think that I'll go stark, raving mad from the barrage of questions that are fired at me. And, when I get stuck for answers, which is not infrequently, we both head for the encyclopedia together when we get home.

He is still far from ready to go out fishing with the men. But, we're learning . . . together.



One year and 29-inches of trout later . . . that rainbow is 17 inches, the brownie 14. Results of the "system;" same boy.

FOR the life of me I don't see why I go fishing. Every time I do, I catch everything but a finny citizen. Oh sure, I go thru the motions of casting, and I use the latest bait—but it's of no avail.

If I were to mount my trophies for the past season, for all the world to see, there would be quite a collection. On one wall you would easily recognize a couple of tree limbs, a tin can, rubber boot, a dozen of assorted bird's nests, minus the birds and one beat-up fishing cap which is mine.

On the other remaining walls the visitor would behold such amazing catches as a battered hornet's nest, ten leaves from an old oak tree and numerous branches and twigs from trees which borders our lakes and streams.

Some joker in the rear seat might utter, "You're lucky, Bud. When I go fishing, I don't even catch that!" My reply to this uncouth individual is this: Did you ever try to fry a bird's nest in cracker crumbs? Not only are they inedible but they don't look a bit appetizing even when browned to a golden hue.

Maybe it's the way I fish, I wouldn't know. The one thing I'm sure of is this. As a fisherman I'd make a fine junk collector.

Of course I've given the problem much thought. In fact I've stayed awake nights trying to solve this vexing problem. Such deep concentration irritates the better half. "Why don't you skip the whole thing," she complains. "If fishing worried me that

much I'd take up some other sport. How about knitting? That isn't too difficult. At least you'd have something to show for it."

Naturally I don't agree with her. Knitting has two good points I agree, but I'd only be dropping stitches and who would be there to pick them up? Not me, I can't stoop that far. So you see I'm stuck with my fishing no matter what I snare.

Philosophically speaking the way I fish does have its merits. It keeps me out of doors where I can commune with nature and swat mosquitoes, but that's about all.

Honestly, after all my years of fly-casting you'd think I'd be able to cast a fly through the hole of a doughnut. Most of the time I think I know the final resting place of my lure and then I'm crossed up. Instead of in a deep inviting pool the darn thing is resting high up a tree on a pine cone where it clings for dear life. Yes, and no matter what I do or say, the languid offender will not stir one iota. It would make a parson swear.

Hank, a fishing companion of mine, says that some anglers deliberately try to hook a tree. It's part of their scheme

Fishin' Fo

to yank off a blob of mayflies on the leaves and sail them into the water. He claims the fish crave these juicy morsels. As a final gesture of good will the fish will nibble on the artificial bait just for the heck of it. It sounds a bit crazy but it's worth trying.

Of course hooking a tree isn't a major crime, or at least in my books. Many of our best anglers are prone to do the same thing. Some guys overdo it that's all. In trying to hook limbs they hook a feathered friend or a butterfly. Sure it's quite a feat to hook a bird on the wing, but it can be done. Especially if you don't know a thing about casting.

We all know that nothing is more exasperating than trying to detach a hook that has been firmly imbedded in a limb ten feet over the noggin. Some anglers are known to get hysterical and throw a tantrum because of this confounded incident. To offset this calamity you can always carry along a twenty-foot telescoping extension ladder to retrieve the erring member. There's nothing like coming prepared for every eventuality. If the stream is overcrowded your time won't be wasted. You can pick the farmer's ripening fruit. See what a good deal it is?

For the real handy fisherman we recommend the making of the telescopic rod and cutting knives attached. This is an extremely useful implement whose prime requisite is to aid sportsmen who make a steady habit of treeing their lures. The operating of this contraption is simplicity itself.

With a deft manipulation of small levers the rod increases its length and sharp knives make their appearance. Then with a mere twist of the forefinger and thumb the meddlesome branch is cut in twain thereby procuring the wayward hook. It is as easy as that. No fuss, no feathers, no foul

The stepladder may become standard angling equipment.



Robins! - - -

By RICHARD C. REDMOND

language. Men swear by this handy tool, instead of at it. What better recommendation would you want? A note of caution must be pronounced here for all you absentminded Andys. Make sure that you are not on the end of the limb when you cut it off . . . that's all!

It's funny about hooking trees too. Did you ever notice the kind of tree your tackle becomes attached to? Why is it that you can hook into an oak or aspen but seldom yank a bit of sassafras bark that could be chewed to quench an awful thirst? I guess the answer is, we fishermen just don't live right.

Some Izaak Waltons of my acquaintance become irked at the prominent part they were playing in tree fishing and called a halt. Yes, they refused to be dubbed with such nicknames as Maple Branch Bernie or Sky Hook Stevie and now use drop lines. I guess the boys aren't as thickskinned as I am. You see, I still continue tossing the flies helter and skelter come what may.

I admit you have to be quick on the draw when it comes to a fast repartee. When my friends ask me, "Did you

catch anything, Bud?" I always use my pet reply and say sorrowfully, "Nope, not a thing! My hook got caught in a willow tree and all I got was a couple of swallows—birds that is."

And wink knowingly. Such a sharp retort leaves them speechless so I amble away chuckling. But the big scene is yet to be played. What will I tell the wife?



A saw comes in mighty handy -- make certain you're not out on the limb!



Blow your stack if it'll make you feel better!



Fish Commission Pathologist Arthur D. Bradford at work in the fisheries laboratory at Bellefonte. Many of his fine articles have appeared in the Angler.

High Yield of Smallmouth Bass in Pond at Bellefonte

By DEWEY SORENSON, Superintendent
State Fish Hatchery, Bellefonte, Pa.

At the Bellefonte Hatchery during the 1951 bass growing season, one bass pond having an area of 1.1 acres produced an exceptionally nice crop of smallmouth black bass. The treatment of the pond together with bass production figures are listed below since they may be of interest to hatchery men and others.

This pond was drained during the winter of 1950-51. The first week of May 1951, the pond was filled with water, fertilized, and inoculated with daphnia from our daphnia rearing ponds. On May 29, a heavy production of daphnia was noted. On this date 38,000 smallmouth black bass fry were placed in the pond and 12,000 bass fry were added on June 1. During the next three weeks daphnia were added to this pond in large quantities.

The small bass began to take some artificial food—finely ground liver and marine fish—during the last week in June. They were fed about six times a day beginning at 7:30 a. m. and ending at about 8 p. m. The fish grew rapidly and consumed as much as 280 pounds of fish and 60 pounds of liver per day during the height of the feeding season.

The pond was drained on September 18 to 20, 1951, and the following num-

bers and weights of smallmouth black bass were removed from the pond:

3,000	bass—2½-3	inches—	31.14	lbs.
5,000	" —3-3½	" —	87.75	"
10,000	" —3½-4	" —	264.00	"
11,000	" —4-5	" —	480.00	"
7,524	" —5-6	" —	689.95	"
36,524	bass		1,553.54	lbs.

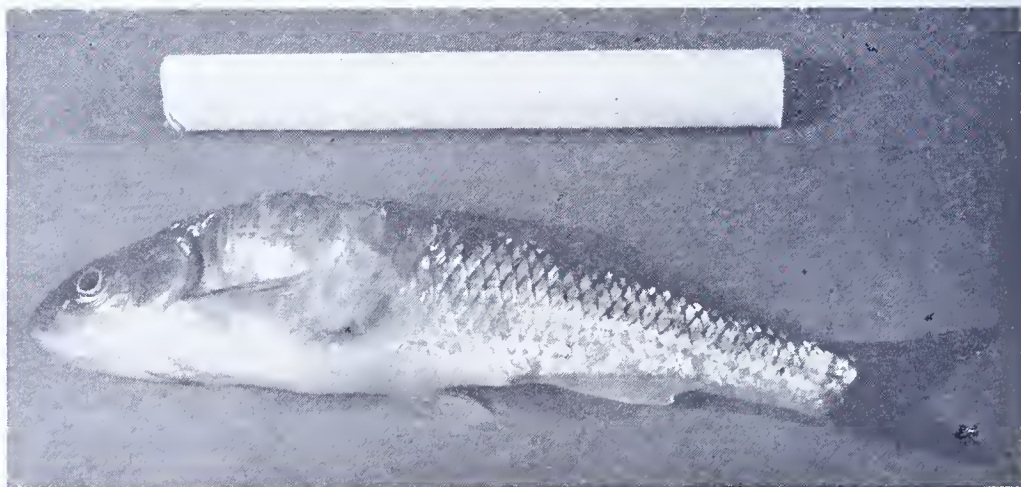
This pond has been in bass production for approximately twelve years, but never before have we realized such a good crop of bass.

Off Home Range, Fourspine Stickleback Found in Pennsylvania Lake

During the past summer when fishery management biologists surveyed Harvey's Lake, they found among the other fishes in their seining operations

a very pugnacious little fish identified as the fourspine stickleback. Since it appeared that this fish was out of its normal range, an investigation was made into the official records at the Bellefonte Fisheries Research Laboratory to try to determine how this fish had been introduced into this lake. The records revealed the following story:

The fourspine stickleback found in the inland waters is a remnant of a fancy which seized fishery men a few decades ago. It was thought at that time that fish production in lakes could be stimulated by introducing natural food into lakes. To carry out this program, many truckloads of forage fish were transported to our inland waters from the tidal waters of the Delaware River. The predominant species brought in was mummichogs, but other species were inadvertently carried along. Among these other species was the fourspine stickleback.



TUMORS IN FISHES

Fishes have many diseases comparable to those found in higher animals and tumors are no exception. Fish may have warts or protuberances which appear to be tumors but are due to other causes such as infections, parasitic diseases, deficiency diseases or injuries. As in higher animals, the true tumors may be of a cancerous type or non-cancerous. Cancerous types may destroy enough healthy tissue to cause severe crippling or death. Other types of tumors may cause disfigurement but may not otherwise harm the fish.

Fishermen may occasionally encounter these malformations in the fish they catch. However, even though the appearance may be distasteful, there is no harm in handling or eating affected fish, especially if they are well cooked.

ARTHUR D. BRADFORD, Pathologist,
Pennsylvania Fish Commission

Excerpts From The Minutes of The Pennsylvania Fish Com- mission Held July 1, 1952

DINGELL JOHNSON ACT—At the July 1 meeting the Commission adopted necessary action so that Pennsylvania qualifies for the allocation from the Dingell Johnson Act, which will be due during the year 1952.

TRANSFER OF WARDEN BETTS—State Fish Warden Robert M. Betts was transferred from Lawrence County to the Warren County Area and Lawrence County was assigned to Warden Richard Abplanalp to be patrolled by him in conjunction with his present district, Mercer County.

FIELD RECEIPTS—The Commission authorized the issuing of Field Receipts for violation of the Fish Laws, the effective date to be January 1, 1953, and they will be confined only to the regular wardens.

SPRING CREEK PROJECT—At the request of the Bellefonte Chamber of Commerce, it was agreed that on an experimental basis the public be permitted to visit the Spring Creek project (Fisherman's Paradise) on Saturdays and Sundays from 9:00 A. M. until 8:00 P. M., Daylight Saving Time, from July 19 to September 1, 1952. Only the main gate will be open for parking cars. The Project heretofore closed at 5:00 P. M. which is the closing time for all hatcheries. The extension is granted to improve a better opportunity for visitors to visit the project.

BEAVER MEADOW DAM—The Commission's engineer was authorized to prepare plans and specifications for the repairs to Beaver Meadow Dam in Wayne County. This is a water supply for the Pleasant Mount Hatchery.

CONSTRUCTION WORK

VIRGIN RUN—FAYETTE COUNTY—A report to the meeting indicated that work is already begun and most of the clearing has been completed.

BIOLOGICAL STATION—BENNER SPRING—CENTRE COUNTY—All major equipment needed in the Benner Spring Development is now on location. And the building of the conversion dam has already been started. Sufficient steel is on hand for the present and the pipe has all been delivered.

DUMANS DAM—CAMBRIA COUNTY—This dam is practically completed and will be turned over to the Commission well in advance of the contract date which is October 1.



PENNSYLVANIA FISHES

The River Quillback

The river quillback (*Carpiodes cyprinus*) is a member of the sucker family. It usually prefers large rivers, but is often found in smaller streams. This fish has little importance to the anglers in Pennsylvania because it does not take ordinary fishing baits. It is reputed that it will bite on doughballs and grubs.

REININGS POND—WAYNE COUNTY—The work under contract has been practically completed with the exception of some repairs which will have to be made by the contractor.

LITTLE LEHIGH—LEHIGH COUNTY—Work has been started on the improvement of the Little Lehigh.

the crappies themselves. Crappies belong to the sunfish family and are good sport as well as excellent eating. Anglers will be assisting in fisheries conservation by keeping all crappies caught regardless of size.

GORDON L. TREMBLEY
Chief Aquatic Biologist
Pennsylvania Fish Commission

Fish Commission Removes Creel Limit on Crappies

A step toward better utilization of Pennsylvania's fishery resources was made recently with the announcement by the Fish Commission that all restrictions had been removed from the crappie basses. Henceforth anglers may keep as many crappies (sometimes called calico bass) as they can legally catch with hook and line—at any time of the year. Actually two species are involved: the black crappie, *Pomoxis nigromaculatus* and the white crappie, *Pomoxis annularis*.

The new ruling resulted from recommendations of Commission biologists who have found many lakes of Pennsylvania overcrowded with crappies. In some lakes it was estimated that as much as sixty-five per cent of the total fish population consisted of these two species. Such an overproduction is reflected in poor growth of the more desirable game species and eventually results in stunting of

INSPECTION OF DINGELL- JOHNSON PROJECT

During July a conference on Dingell-Johnson projects in Pennsylvania was held at the Bellefonte office, Albert H. Swartz, Acting Regional Supervisor, and Dudley Crawford, Engineer, Federal Aid Branch, U. S. Fish and Wildlife Service, Boston, were present.

Following an afternoon discussion on federal aid projects, an inspection trip was made to Virgin Run Dam in Fayette County. Accompanying the federal representatives on this trip were T. F. O'Hara, Engineer, and Gordon L. Trembley, Chief Aquatic Biologist, Pennsylvania Fish Commission.

The construction of Virgin Run Dam represents the first approved federal aid project of the Pennsylvania Fish Commission. When completed, this dam will provide a lake for managed public fishing in an area where public lakes are at a minimum.

Story of the FISH ANGUILLA (From Page 5)

into an elver. In the larval stage the American eel looks like the European eel, and both are hard to see. There was just one way to tell them apart, a way which required endless, tedious, and difficult counting aboard the "Dana."

Leptocephalus is made up of many segments. These number between 106 and 109 for *Anguilla chrysypa*, the American form and between 113 and 117 for the European form. Occasionally the American variety had a few less, as little as 104, and the European a few more, as many as 119. They met at 111, and five specimens with that critical number of segments were caught. Nobody can say whether these five, if left alone, would have ended up in the Rhine or in the Hudson. The other 7000 specimens clearly belonged to one group or the other. Imagine counting the segments in 7000 specimens, most of them only an inch long and all, of course, transparent!

When Doctor Schmidt had neatly entered all his facts on large charts, one could see what happened. When the European eels left their rivers in the autumn (Schmidt, of course was mostly interested in the European variety, for good commercial reasons), they seemed to travel with steady, high

speed, arriving in the Sargasso Sea around Christmas and the New Year. Where they laid their eggs was not quite certain, but it was *not* among the drifting weed at the surface. It did not seem to be at the bottom of the sea either, since the ocean is quite deep under the Sargasso Sea. In any event, the smallest larvae, only about 7 millimeters, or $\frac{1}{4}$ inch long, were caught at about 1000 feet. During the first summer they grow to a full inch, or 25 millimeters; during the second summer they double that length; and during the third they reach 75 millimeters. Then, after the change, they swim upstream. Thus their travels consume 3 years, at the rate of about 1000 miles a year, and they evidently "ride" the Gulf Stream for much of their journey.

The American eels, which seem to hatch in separate camps under the Sargasso Sea, travel at the same rate, but since they are only about 1000 miles from home, their growth is adjusted to the shorter time at their disposal. They are as large and as advanced when they reach their rivers as are the European eels.

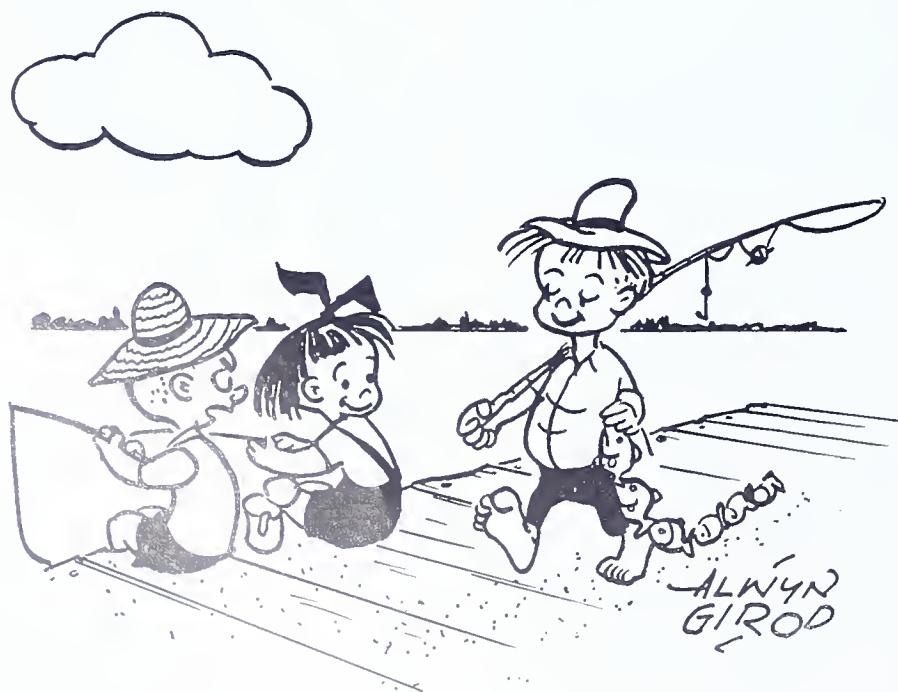
The discoveries of Grassi and Calandruccio enabled both the Italian and the French fishery commissions to do

what had once been tried with cut-up horsehairs and grass sods: to restock water depleted of eels. The French, especially, kept careful record of their work. They reported that each ton of elvers seeded into swamps and small waters off the river Aisne resulted in 2500 tons of food in 5 years.

Pliny may have been right when he gave "eight years" as the average time that eels need to reach maturity; the females seem to require from eight to twelve years and the males from five to eight. Then they go on a complete fast; aquarium specimens went foodless for six months until they died, which is reason for believing that the eel spawns only once and dies soon afterward. But some individuals do not mature sexually; these have been found to live more than 20 years and to reach a length of 6 to 8 feet and a weight of 30 pounds.

It may also be added that the Conger eel, which stays in salt water, goes through the same transformation as the common eel, as does a variety of other eels and fishes. Its larva is *Leptocephalus morrisii*.

And finally, neither the water of the Danube nor the surface water of the Black Sea is "inimical" to eels. Perhaps the eels just can't make that long a trip before they are ready to be "river eels."



"He oughta be good . . . he's fished all his life!"

NOTICE

Up to and including
September 30, 1952
we are accepting **ONLY**
single one year
subscriptions to the
PENNSYLVANIA ANGLER
at the old rate of 50¢.
Beginning October 1
the subscription rate
will be \$1.

Those Susquehanna Lakes (From Page 8)

the Companies supply badges which indicate their membership and make them eligible for the \$200 which the Companies put up each year as awards to those catching the largest fish in four categories—bass, pike-perch, carp and catfish. The only requirements are that members have State licenses and obey State laws regulating the taking of fish. There are, at present, over 6,000 members in the Club.

Estimating the number of individuals, other than fishermen, who enjoy the recreational facilities afforded by the lakes would be difficult in the extreme, since the lakes belong to the public and no effort is made to count the number using them. For the most part, the river flows between steep,

rocky banks but thousands take advantage of such areas as Long Level (so-called because it was the longest level stretch of the old Susquehanna and Tidewater Canal) in York County and Pequea in Lancaster County, where the land slopes gently down to water level. Motor boat and sailboat regattas are held each summer. Canoeing is popular and the rowboat, containing fishermen or individuals simply rowing around admiring the scenery, is a frequent sight. Swimming is just what one would imagine it would be, in lakes which provide clean, fresh water, with a number of summer homes dotting its banks.

Summer sports on the lakes have

always been fostered by the two power Companies. Behind this, perhaps, is more than the normal business corporation's desire to maintain good community relations; John A. Walls, who had been active in their management until his retirement as Penn Water's president last November, was born at Lewisburg, Pennsylvania, farther up the Susquehanna and spent his boyhood days along its banks. To him must be given much of the credit for the attitude of the two Companies towards their neighbors, for the reforestation programs which they have carried out, for the roadside markers which point out historic points and for picnic grounds at the plants, which are open to Lancaster and York county organizations for use as spots for outings.

Float Fishing (From Page 19)

A favorite trick is to use the floating "Buldo" with a wet fly or nymph on the terminal dropper and a dry fly on the upper dropper. Keep the rod high and the line fairly tight in the current, so that the dry fly dangles just above the water, with the wet fly or nymphs submerged. By twitching the rod tip slightly, the dry fly can be made to dance most realistically. With this rig, I have seen many times when trout will go crazy jumping from the water for the dry fly and either take it or the nymph or wet fly on the lower dropper.

Try method number two with a small shiner hooked through the back. A split shot keeps the bait at the right depth, as determined by the length of the leader. By moving the "Buldo" slightly, the rig can be steered between lily pads or other obstructions, allowing fish to be taken from difficult spots where nothing else is particularly effective. Worms work well, too, of course. Its an excellent way to drift one down a run in a stream, or through a deep pool.

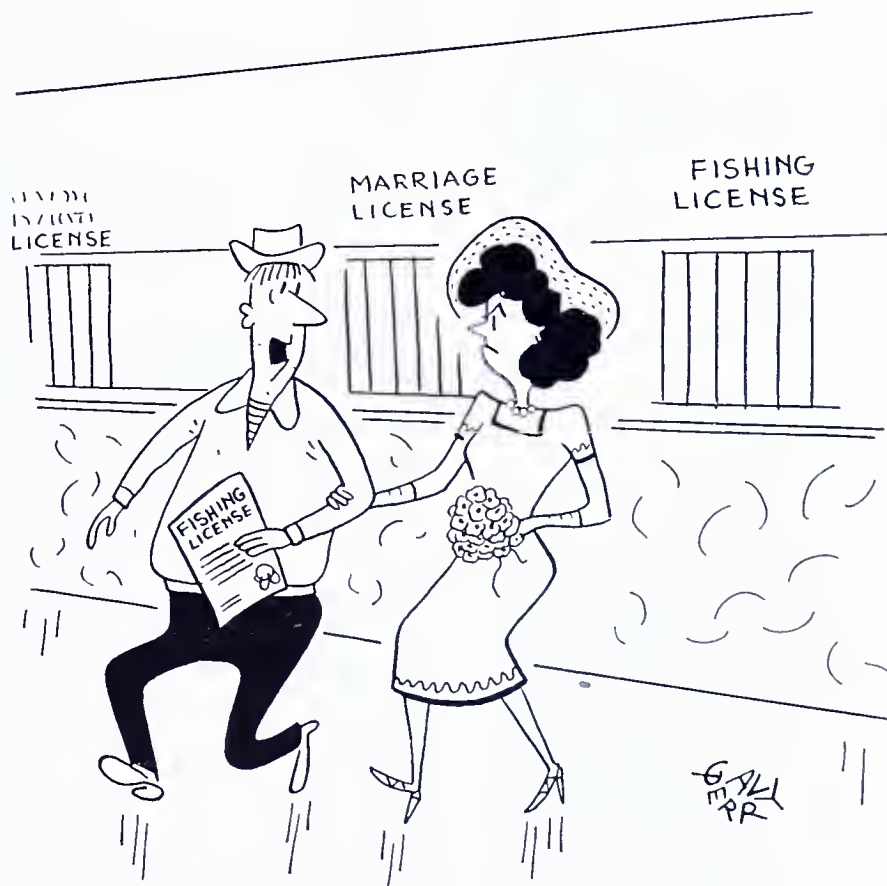
These are only a few ways of float fishing with spinning tackle. The many variations are only restricted by what one can cast conveniently. With the little "Buldo", and nymph, wet fly or dry fly attached, a single flip of the wrist will send the rig a hundred feet or more, if necessary, to drift in chosen

spots on the surface or under it, as the angler may desire.

Float fishing with spinning tackle is fun and it takes fish! I have seen it take big ones right behind expert fly casters and behind spinning anglers

using normal equipment. It is a proven method which pays off under conditions when others fail.

So, next time you go spinning, remember to take a "Buldo" or two, and a few flies! It may make all the difference between drawing a blank and filling the skillet. Anyway, its a great deal of fun!.



"You mean . . . you thought?"

The Editor's Angle



ACTION AT STATE LAUREL FESTIVAL held at Wellisboro, Pa. recently. Fisherwoman is Elsie Daniels, New York City, prominent model for Harper's Bazaar and Vogue. Spectators are: at right Pat Stefany, Northampton, Pa. who was crowned Pennsylvania State Laurel Queen and at left Jody Montgomery of State College, Pa., runner-up in the contest. Scene is at "Grubb Hole" on Pine Creek. (and there's really a fish on the end of the line!)

Dear Editor:

Please find enclosed herewith \$1.00 for two year's renewal of my subscription to the ANGLER. I am also enclosing lines, "I Go A-fishing," which I wrote more than a year ago; you may recall having rejected them as not suitable for publication at the time. However, I have re-written them and feel that they now express a bit more clearly the thought I had in mind.

Originally, these lines were written only for myself and my old friend, Henry (Frenchy) Du Broux, of Du Bois, Pa. who is well known to ANGLER fans as a fisherman and fly tyer, and whom I first met while fishing the Hammersley Fork of Kettle Creek. "Frenchy" proved to be a congenial companion, and one of the most devoted disciples of "Old Izaak" I have known. It was a wonderful June day that I shall not soon forget. The air during most of the day was swarming with "hatches," and the water with droves of brook trout that were, most of them, unapproachable (this was in 1932) because of the low stage of the water which was as clear as well water. To me, the stream seemed unique in that the surfaces of its quiet pools shone in the sun with the bright splendor of plate glass mirrors. I do not recall having seen any other stream that has quite this shining quality. I enjoyed just being there amid such surroundings, much more, I think, than I enjoyed the mere taking of fish. I will admit that I did not succeed in taking more than five or six fish that day.

The thought I had in mind is no more than this: There is more to fishing—trout fishing—than the mere taking of fish. We fishermen have been, I am convinced, laboring for years under a mis-

taken idea, the idea that when we go a-fishing we fail utterly unless we succeed in taking the creel limit.

When I began my trout fishing as a boy of fifteen, there was no limit. We did not think of our catch in numerical terms, but as a "mess"—a mess of trout. Later on, a creel limit of fifty fish was imposed. After that, we counted our fish, and found ourselves feeling a bit crestfallen when they added up to less than that number.

I remember very distinctly the day that I caught forty-eight trout. I counted them twice, but the total remained the same. Then I thought: But if I could have landed just two of those that got away—I Well, I never *did* succeed in getting my fifty. And so, you see that, after the passage of more than fifty years, you still have a frustrated fisherman.

Silly? That is just what I'm kicking about.

Some years later the limit was reduced to twenty-five fish. This was quite a relief; the "requirement" was cut in half—less onerous by fifty per cent! I recall a trip thereafter to Potter County on which I caught this reduced limit on five successive days. I was not disappointed in the least. I had lived up to the "requirement" nobly; but, if the limit had still been fifty—?

How silly can a man become—and live?

As all are aware, during the past several years the limit has been ten fish, and, beginning with the coming season, will stand at the new figure of eight.

It would seem that, after all, we are becoming less and less silly; the "require-

ment" is gradually becoming (Shall we say it again?) less and less onerous, thanks to the intelligent policy of the state fish commission. They are living up to the slogan published in the current issue of the ANGLER: If you would have more fish—KILL LESS! And they are doing it by making the "requirement" less onerous: A fat, juicy and sonorous four-dollar word, that; and this is the only time I have seen it overworked.

In closing, let me add that the lines submitted were revised in the hope that they may serve to point the moral in the slogan: If you would have more fish—KILL LESS!

EARL SHIBLER

Lake Lynn, Pa.

I GO A-FISHING

(Luck is where you find it)

Go a-fishing?
Just a-wishing! . . .
An angleworm;
It twists and turns,
I flick my rod.
I cast. Egad!
Aha! I've missed—
Once more, I've missed.
I try a fly;
A trout leaps high!
I strike. Again
I miss: And then:
No luck today?
The Red Gods smile:
"Good luck," they say,
"Bright waters shine!"
Adown the wind
Comes news of flowers,
Tales of springtime
Sun and showers.
Bright waters noise
Abroad their tune—
Lend Music's voice
To woodland June.
A hidden, shy
Anemone
Peeps forth to smile
And nod at me
And lo! 'tis clear
To once-blind eyes
That Luck is near—
Close by my side!
And wood-birds tell
The happy tale
And, all the while,
The Red Gods . . . smile.
—EARL SHIBLER

Dear Editor:

A few months ago, I wrote about blowing in fishes' mouths to keep them alive and most were convinced after reading it that the old story about most fishermen being liars was true and that I was an outstanding example. Yet some others told me it was an old trick so it just shows to go that truth is stranger than fiction.

And now, I've got a dilly of a true story that will even raise doubt in the minds of those who believed me last time, my purist pals will be more furious than ever that I would sink to using live bait, and I'm going to have more trouble than ever convincing anyone that I catch fish unless I bring them home! But as before, I have witnesses for verification of the following wild tale:

Early last December after game fish were out of season and stubbornly refusing to believe the fishing season was over, some of the boys and I took a trip down to

PENNSYLVANIA ANGLER

Maryland—just to go fishing, you might say. We headed for the Chester River, a good body of water which eventually ends at Chesapeake Bay, and has a good population of large yellow perch as well as other common fishes. It's a few degrees warmer down there and we knew of the perch because we had hooked a few before while casting for bass, pickerel and white bass. (I had to get that in just so my purist friends will speak to me again.) In season, if you go up into the headwaters which is still classified tidal water, you'll hook bass up to nine pounds, two pound perch, large pickerel, and occasional salt water species including stripers and shad. You'll need your own boat.

Well anyway, we bought some minnows on the way down. These minnows were a salt water variety called bullheads—no relation to the catfish family—and are amazingly tough and long lived and a darn good bait. The fishing was good and we got a mess of luscious big perch plus some big blue catfish of five or six pounds each. We left about dark and arrived in Philadelphia about two hours later. The fish had been in the trunk wrapped in newspapers and had not the least contact with water for two hours. The fish were put in the kitchen sink and we proceeded to do the most unpleasant task of fishing. The water was turned on so it ran slowly. I cut into a big perch. Bingo! A minnow jumped out of the belly and skidded across the sink wiggling and bouncing! Cliff and I looked at each other in amazement and as if to say, "Do you see what I see?" We plugged the drain and the minnow swam around in the little puddle. Don't ask me why. Don't ask me why it hadn't died from the perch's digestive juices. Don't ask me why it lived without water. Don't ask why it could live contrary to all the things I have been taught about nature. Ask Mr. Buller or—maybe Ripley. All I can say is it's true. (We were sober too.) All this gives me a new idea. Maybe these minnows could be trained to be swallowed and then tickle the fish to death. That way you would only need one minnow. In fact there might be a business possibility in it by renting tickling minnows!

J. L. Carlberg

Philadelphia, Pa.



Mrs. J. F. Helsel, Altoona, Pa. sends in this snapshot of her son, John Forrest Helsel with a 15-inch trout he caught at Fisherman's Paradise. John is proud of his first fish.



Wm. M. Houtz of Harrisburg sends in this pix of netting trout in Mountain Creek near Pine Grove Furnace, Cumberland county on April 19.

Dear Sir:

Now I have no way of knowing how many ladies read this magazine but if you are a lady and want to do yourself a favor don't let on you have read it but be sure your husband does because it is written for him explicitly.

There was a man I knew very well who loved to hunt and fish. His wife being part Scotch was very budget-conscious and having three small children, food was a large item. When her husband made a fishing trip and brought home a nice catch (even if he caught them over a counter as happened a few times) all was well. On the days when the river was high, the stream was low, the barometer up or down or anyone of a hundred other alibis fishermen use, meant no fish she has been known to be very upset.

One summer day the husband came home with the news the plant where he worked would be shut down for a week. Kind of thought he would like to go up the river for a weeks fishing. More because she didn't want to stay at home than for any desire to participate in a fishing trip the wife suggested the family go along for a camping trip. Even suggested it might be nice to have a cook along since he especially disliked cooking and dishwashing.

They borrowed a tent and headed for Conneaut Marsh close to French Creek in Pennsylvania. The two girls enjoyed the camping but the six year old son being a true son of his father wanted to fish. He

fished the marsh and hooked some really nice catfish but was afraid to take them off the hook so his mother was helping him though a little leery of the catfish herself. The husband was afraid the fish warden would come along and the wife would have trouble explaining the situation, so he bought a license for her. Being part Scotch, as I said before, she figured she should get her moneys worth. She borrowed one of her husbands rods and had a wonderful week. Well, when he talked fishing after that she went right along if it was convenient, if it wasn't there wasn't any more gripes about no fish. The question was "did you have a nice time?" In the Spring "Is there many wild flowers in bloom?" "In the fall" was the water high, was the leaves pretty, were the fish biting.

She doesn't try to wade a roily stream or cover a lot of territory. She stays fairly close to camp when it's close to meal time. She heads for camp and usually has the meal well on the way when the men are ready to eat. She's a good sport under all weather conditions. She can't swim so won't go out in a boat without her life jacket and obeys all the safety rules. She was squeamish about baiting her own hook at first but now if you see someone fine combing their lawn with a flashlight some rainy night it's because her supply of nightcrawlers is low. When her husband talks about going shopping for fishing equipment she has her coat and hat on and is holding his hat for him.

Now if your wife gripes how much money you spend for material and trips and wonders very audibly when you are going to bring home a decent catch take her along if you have to Shanghai her. Part of the reason she resents fishing trips is because they take you away from her. Let her take her knitting or sewing along if she is afraid of being bored, but be sure to get a fishing rod into her hands and let her get the thrill of landing a fish. Don't stick her with all the camp work but let her do her share. Put the bait on her hook if she can't. Someday you won't be close by and the fish are biting she might do it with her eyes shut but she will know she can and she will. She may be some bother the first trip but I'll bet she wants to go the next time. Brother, you have found a real fishing pal and ladies if you are still with us, cooperate and you will have the time of your life, see places you never expected to see. Learn to enjoy one of the finest sports in the world.

Ellen Tackitt

Pittsburgh, Pa.



Lou Kunkel, Erie, Pa., snagged this 27 1/2-inch rainbow trout in Trout Run, near Avonia (10 miles west of Erie). The fish weighed 6 lbs., 15 oz. It is thought the trout had entered the small stream from Lake Erie to spawn.

PLEASE!

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September 30, 1952
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single one year
subscriptions to the
PENNSYLVANIA ANGLER
at the old rate of 50¢.
Beginning October 1
the subscription rate
will be \$1.

Mr. Editor:

We would appreciate a write-up in the Angler concerning the winners in our large fish contest for 1951:

SENIOR WINNERS

- 1st Brown Trout—Roy Nimmo, length 21 $\frac{5}{8}$ inches.
2nd Brown Trout—Al Stair, Jr., length 15 $\frac{1}{2}$ inches.
1st Rainbow Trout—George Pearson, length 14 $\frac{1}{2}$ inches.
1st Brook Trout—John Sauers, length 15 inches.
2nd Brook Trout—John Sauers, length 14 inches.
1st Walleye Pike—Al Stair, Jr., length 23 $\frac{1}{4}$ inches.
1st Small Mouth Bass—John Bowman, length 20 $\frac{3}{16}$ inches.

JUNIOR WINNERS

- 1st Brown Trout—Norman Lawrence, length 16 inches.
2nd Brown Trout—Thomas Forest, length 15 inches.
1st Rainbow Trout—James Gall, length 16 $\frac{1}{4}$ inches.
2nd Rainbow Trout—Thomas Forest, length 14 $\frac{1}{2}$ inches.
1st Brook Trout—James Gall, length 15 inches.
2nd Brook Trout—William Barnett, length 14 inches.

K. H. Nauman, Secretary
Hellertown Sportsmen's Assn.

Dear Editor:

Hearing der Nixnutz present on his regular Sunday afternoon broadcast several weeks ago, one of Boonastiel's articles on fishing, recalled a story that a neighbor told me some years ago about the late Col. Thomas Harter, immortal creator of Boonastiel.

I shall try to tell it just as my neighbor related it to me.

"For some years we lived along Penns Creek near the Paddy Mountain tunnel. Tom Harter did a lot of trout fishing in that section and I became well acquainted with him. At that time he was editor of the *Keystone Gazette*, at Bellefonte.

"After we became acquainted he came to our place several times a year during trout season, usually staying for three days. He fished for sport but he did enjoy a good mess of trout, which my wife could, and often did, prepare just to his liking. He was a true conservationist, practicing what he preached. He never carried a rule. The fish he kept were always beyond question; but one time tough luck got the better of him.

"He arrived one morning late in May in high spirits for all indications seemed to favor a successful trip. On the evening of the first day he returned empty handed. 'Yes,' he said, 'I caught a few small ones, eight or nine inches, but none worth keeping.' It was the same the second day. On the third morning he started out determined to do better. He fished hard all day, using everything in the book but results were the same.

"That evening it was almost dark when he returned and instead of coming directly to the house as he usually did, he stepped into the wood house for a moment. When the time came to retire he started toward the wood house. Seeing him go my wife called, 'Mr. Harter, you needn't bother about those trout, I dressed them and put them in the spring house for you.' I wish you could have seen his face. Sure those trout were legal and some to spare, but they just weren't the kind Tom Harter usually took home.

JACOB G. SHIVELY.

Millmont, Pa.

Dear Mr.

Considerable agitation is afoot to abolish the time-honored salutation "Dear" in business letters and the sign-offs such as "Yours very truly" which mean little, if anything, to sender or recipient.

Businessmen are being urged to join the Society for Abolishing "Dear" in business letters, sponsored by a Chicago artist, who claims it is the most insincere word in business correspondence and, if it is used at all, it should be used only where really meant.

An advertising executive goes the society one better. Instead of "Dear" he suggests "Hello" or "How do you do, Mr. Whoozit?" even "Hi-ya, ya big bum," as more indicative of the approach used in personal conversation. For the sign-off he would relegate "Very truly yours," "Sincerely yours"

IMPORTANT!

Up to and including
September 30, 1952
we are accepting ONLY
single one year
subscriptions to the
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at the old rate of 50¢.
Beginning October 1
the subscription rate
will be \$1.

and other bric-a-brac preceding the signature to the ashcan, and would have you say "Goo-bye," "So long," "Toodle-oo," or "I'll be seein' you."

Should one greet the recipient of his letter as one feels? Such as, writing to the guy whose account is overdue: "Lissen, bub," "Hello, again," or just plain "Hey!" Of course, letters written to a millionaire aunt could still be addressed "My very, very dear Auntie," because she might mention you in her will. There is a point here, however, and that is, it is very easy to get into a rut when one is compelled to write many letters daily.

—York Trade Compositor.



"Well—what do you know? "They finally come home with some fish AFTER subscribing to the *Pennsylvania Angler*."

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While this results in an increase necessary to meet increased costs of printing, engraving, paper and mailing we sincerely believe our subscribers will continue to want this fine, interesting and informative conservation magazine if we can judge by what our readers write us month after month.

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"Never have I enjoyed a magazine more than I have the ANGLER over the past four years. I'd hate to miss a single issue and I hope the Pennsylvania Fish Commission will keep up the superb job of publishing this wonderful magazine."

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F. R. MOORE, Cleveland, Ohio.

"I want to express my appreciation for the fine job the ANGLER is doing each month. It takes preference in all my piscatorial reading."

GERALD F. HARTZEL, Lansdale, Pa.

"I always received the ANGLER when I was back home. I think you do a wonderful job of keeping the sportsmen informed of what is going on around Pennsylvania waters. Although I am over here fighting in Korea I have not forgotten my favorite sport of fishing."

CPL. HENRY H. WALTER, Somewhere in Korea.

"I enjoy the ANGLER very much. I take other fishing and hunting magazines but they tell more about fishing in far away places which does not interest me because I do all my fishing in Pennsylvania waters."

C. O. HORNSTEIN, Erie, Pa.

The Pennsylvania Fish Commission wishes to thank all you nice people everywhere for sending along your fine, encouraging comments on the PENNSYLVANIA ANGLER. We can feel justly proud of our publication!



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PENNSYLVANIA ANGLER

1952

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PENNSYLVANIA WEEK—1952

OCTOBER 13-19

**COMMONWEALTH OF
PENNSYLVANIA**

HON. JOHN S. FINE
GOVERNOR

*

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ARTHUR D. BRADFORD
Pathologist

CYRIL G. REGAN
Chief Div. of Land and Water Acquisition

GEORGE H. GORDON
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**THE COVER . . . Our Nomination for
MISS ANGLERETTE, 1952. What poor
fish wouldn't want to meet this pretty
Miss?**

Cover Photo by Ewing Galloway, N. Y.



Back cover view of Susquehanna River with
historic Council-Cup Hill of Wapwallopen in
the distance. Wyoming Valley Indians used the
hill for council meetings.

Photo by Don Shiner



George W. Forrest, Editor

1339 East Philadelphia Street, York, Pa.

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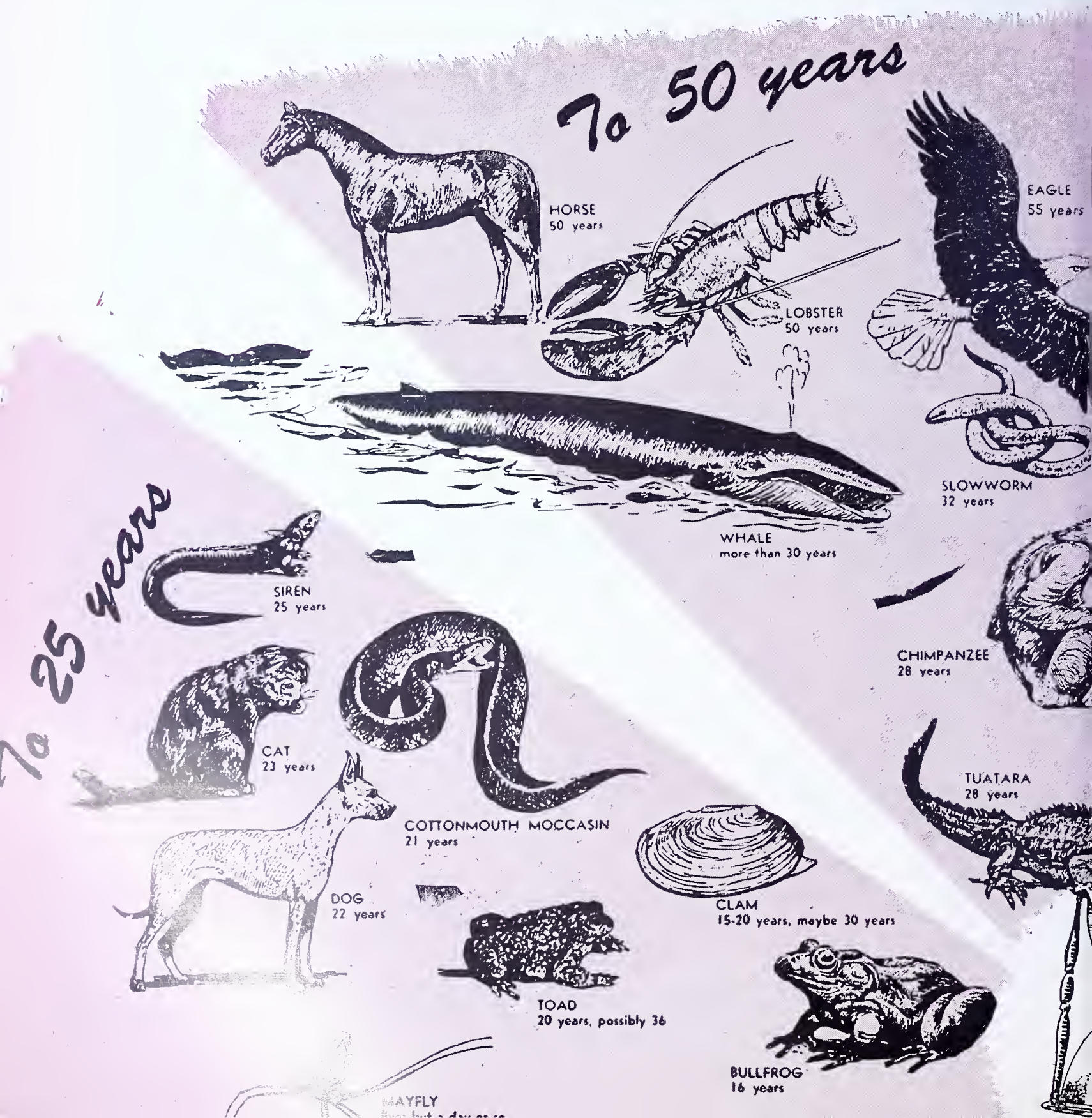
How Long Do They Live?

Man may have the old-age record among mammals,
but he has yet to learn some tricks from the reptiles

By OSMOND P. BRELAND

Drawings by Matthew Kalmenoff

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Natural History.



PEOPLE have always been interested in life expectancy. That they are also interested in the longevity of animals is evident from the numerous stories published by newspapers and magazines concerning the extreme ages reached by various types of creatures. Unfortunately, many of these reports are far from accurate. They are based principally upon hearsay without positive proof. As a consequence, the majority of people believe that some animals attain a much greater age than they actually do.

The term "animal," incidentally, is used by biologists to include any creature within the animal kingdom. It may thus be applied correctly to anything from the smallest one-celled organisms called protozoa up through the various worms, shellfish, and insects to the mammals, the class that includes man himself. It may offend some people to be classified as an animal; but if one looks at the situation objectively, he must admit that in many respects man is as much an animal as are many of the other living things so designated.

In fact, it might even be argued that in some human beings several of the so-called "animal instincts" are better developed than in other creatures.

Most of the accurate old-age records for animals other than man have been obtained from zoological parks, but some apparently reliable reports have been obtained from private individuals who have kept animals under observation for a number of years. Conditions of captivity may have either lengthened or shortened the lives of these creatures. In the artificial environment, animals are sometimes given unfamiliar foods, and they may be exposed to diseases they might not ordinarily encounter. On the other hand, they are usually better cared for when ill, and they are protected from their natural enemies.

Some of the most amazing records for longevity have been established by creatures that are far below man in the scale of living things. Almost



everyone who has spent much time at the seashore is familiar with the marine animals called sea anemones or sea flowers. These creatures are not very active. They usually remain attached to rocks or other substrata by one end of their columnar body. The end of the body opposite the point of attachment is a rounded disc containing the mouth and covered with many small projections, called tentacles, which greatly resemble the petals of a flower. When undisturbed, the sea anemone expands the disc, revealing the numerous tentacles. These creatures can usually be measured in inches, but some are as much as three feet in width. They are often brilliantly colored and are frequently responsible for much of the beauty of underwater landscapes.

Sea anemones belong to the same group as do corals and jellyfish, and all these animals have a very simple bodily architecture as compared with man or even with an insect. But we must look upon these lowly organisms with a certain amount of respect because of the known ages some of them have attained. Sir John Dalyell, English biologist, had one in his laboratory that lived for 66 years, while a Scotsman is said to have kept another for over 70 years. Others have been reported as living for more than 100 years. This may be true, but I have not been able to confirm the figure.

Facts are not available for many species of worms, but most of them probably do not live more than a few years as adults. Certain forms, however, have the ability to pass into a state of dormancy and in that condition may survive for a long time. The parasitic worms that afflict the larger animals are often very long-lived. Human flukes, such as the schistosomes and the oriental liver and lung flukes, may live 20 to 30 years in the human host. The larger human tapeworms, for example, the broad and beef tapeworms, are known to survive from 5 to 35 years, perhaps longer. And the roundworms of man may survive for 15 to 20 years, depending on the kind. The ability of the nematodes and some other animals to survive without food or water for many years has recently been discussed in *Natural History*.*

A few of the shellfish, a rather loose designation that includes clams, crabs, lobsters, and similar creatures, attain a respectable age. Clams are known to live for 15 to 20 years, and as much as

30 has been reported for some. Accurate data are not available for many kinds of crabs, but the edible American blue crab seldom lives longer than 3 or 4 years. The American lobster occasionally reaches a weight of 30 to 35 pounds, and biologists have estimated that such monster individuals are probably more than 50 years of age.

Unfortunately, we do not have much information about two animals in this group, either one of which might well be the champion. These are the giant clam of the Pacific Ocean and the giant squid. Giant clams of more than 600 pounds are known, while specimens of the squid have been recovered with a length of over 50 feet. Large size does not necessarily mean great age, but the chances appear good that both these creatures live much longer than many for which authentic records are available. It has been stated that the large clams have been known to live more than a century; but so far as I know, this has not been verified.

The majority of insects live for only a short time, at most only a year or so, but a few, such as the queen of the honeybee ants, and termites, live for several years. One instance is known of a queen ant surviving for 15 years. Worker ants are known to live from four to seven years.

Some of the wood-boring beetles normally take six to seven years for their full development as larvae. Under unnatural conditions, such as when a tree is cut up for use, the time may be increased, owing to the drying out of the wood. Perhaps the most amazing case of longevity among insects is such an example. There is, of course, always the chance that the insect in question may have entered the wood at a later date, but an English biologist reports that a living specimen of a beetle called the metallic wood-borer was found in a table that had been in use for 37 years!

The seventeen-year cicada, sometimes called locust, is certainly the best known of the long-lived insects. This insect spends most of its inordinately long life in its immature stages. For seventeen long years the young cicadas live underground, burrowing through the soil and feeding upon the roots of plants. At last the big day arrives, and the youngsters, somewhat resembling chubby crawfish, scramble out of the ground in uncounted numbers. They shed their skins, mate, and die within a few days or weeks.

It is a well-known fact that many fishermen exaggerate occasionally when

telling of the number and size of the fish they have caught. Even the ages of fishes have not escaped the fish story tendency. And so we read of a pike that lived in a German lake for 267 years, and of carp that have survived for more than 150 years. Unfortunately for the sensationalists, there is no evidence that these fish stories are correct, and there is some reason to believe that they are incorrect, despite the fact that well-known encyclopedias have cited these as authentic examples of extreme age. The skeleton of the famous pike, long preserved in a museum, was found to be composed of the bones of several different fish. And an investigation of the reportedly aged carp revealed that they were not the original fish that had been placed in a pond many years before, but instead their descendants. The European catfish or wels, a species that may attain a weight of several hundred pounds, is thought to hold the age record for fishes. There is considerable evidence that two of these fish may have lived for more than 60 years in a lake in England. An eel in Europe, which may well have been a moray, because it was an ancient custom to keep these as pets, is second, with a known life of 55 years. The American eel is said to have survived for 50.

It is possible to determine the age of many fishes by examination of their scales. This technique will doubtless greatly extend our knowledge of the longevity of fishes in years to come. The reader can find a good bit of information on this subject in J. R. Norman's *History of Fishes*.

The greatest known age for an amphibian has been established by the giant salamander, a species that occurs in Japan and adjacent areas and attains a maximum length of more than 5 feet. One specimen was kept in a zoological park in Leyden, Holland, for 52 years. A European toad is thought by one authority to have lived for 36 years, which is a rather remarkable achievement. It is hardly necessary to state that the belief, held by some people, that toads can live for hundreds of years sealed in solid rock has been disproved many times.

Large turtles and crocodiles are the most famous of the alleged reptilian Methuselahs. A newspaper article some time ago gave a well-known physician as authority for the statement that large sea turtles may live for as much as 5,000 years. The truth of the matter is that no one knows how long these turtles can live, although in view of the

*November, 1950.



known ages of other reptiles, the 5,000-year figure appears more than slightly excessive. The greatest reasonably verified age records among reptiles have been established by some of the large tortoises. These tortoises are entirely land inhabiting, and outside of zoological parks they are relatively rare. They are natives of several groups of islands, including the Galápagos Islands off the coast of South America. Biologists who have investigated the matter have credited certain of these tortoises with more than 150 years of life, with the admission that some may live as long as 200.

One Marion's Tortoise (*Testudo sumeirei*) is reasonably well proved to have survived for 152 years, when it was accidentally killed. And back in 1923, the *New York Times* ran an article under the title, "Turtle Branded by Captain Cook in 1773 Is Now Found Alive." The article referred to a tortoise from the Galápagos left on Tonga Island 150 years before, but no one has reported whether it continued to live. Apparently it was showing signs of extreme old age, for the captain of the ship was quoted by the *Times* as reporting that it was blind and that it creaked like an ox cart when it walked.

Even the relatively small Carolina Box Tortoise of the United States is believed by some authorities to attain an age of more than 100 years. The principal evidence for this great age among tortoises seems to be based upon intermittent observations on certain marked individuals over a period of years. None of these reportedly ancient tortoises, so far as could be determined,

have been under careful enough supervision to make sure that another animal might not have been substituted for the original one. On the other hand, competent biologists have provisionally accepted 150 to 200 years as the probable life span of some of these reptiles.

Some writers have stated that certain sacred crocodiles of India have lived for more than 200 years, but authentic records do not confirm this. The oldest known crocodilian was an American alligator that was a resident of the Dresden Zoological Park in Germany for approximately 56 years. This reptile was still alive according to the last report available to the writer.

Parrots, swans, and eagles are often stated to live for more than 100 years. However, many of these statements are based upon reports that originated several hundred years ago. They are obviously difficult to prove or disprove. Modern study does not give the bird clan nearly as much life expectancy as do the older claims. According to a recent investigator, the oldest established bird ages include an owl of 68, an eagle of 55, a condor of 52, and a pelican of 51—a rather far cry from the five-score-plus previously credited to some of our feathered friends.

Aside from man, the life span of elephants has doubtless received more attention than that of any other mammal. Until a few years ago, even competent biologists believed that elephants lived to well over 100. The late Major Stanley Flower, well-known authority on animal ages, recently investigated the question of elephant longevity. He

found, much to the surprise of many people (including the writer), that the greatest established age for one of these creatures was approximately 69 years.

Several other elephants were discovered that had lived for more than 60 years, but centenarians were sadly lacking. Most biologists are agreed, however, that the elephant is the longest lived mammal, excluding man, and it seems possible that an occasional individual may live past the century mark. A few domestic mammals have done well. A horse of over 50 years seems authentic, while a cat of 23 and a dog of 22 have been provisionally accepted.

Unfortunately, positive figures are nonexistent on the life expectancy of whales, the largest of the mammals. It seems unlikely, however, that these creatures live nearly as long as might be expected of animals that grow so large. Some whales may be more than 25 feet long at birth, and they may double their length and become mature in the incredibly short time of two to three years after birth! Harpoons, marked with the date of manufacture, have been recovered from the bodies of whales, and some biologists believe that a study of the female reproductive organs will give some indication of the age of individual specimens. It appears well established that whales may live more than 30 years, but estimates of 100 years, based principally upon a study of female reproductive organs, seem somewhat excessive. We would know more about whales if some am-

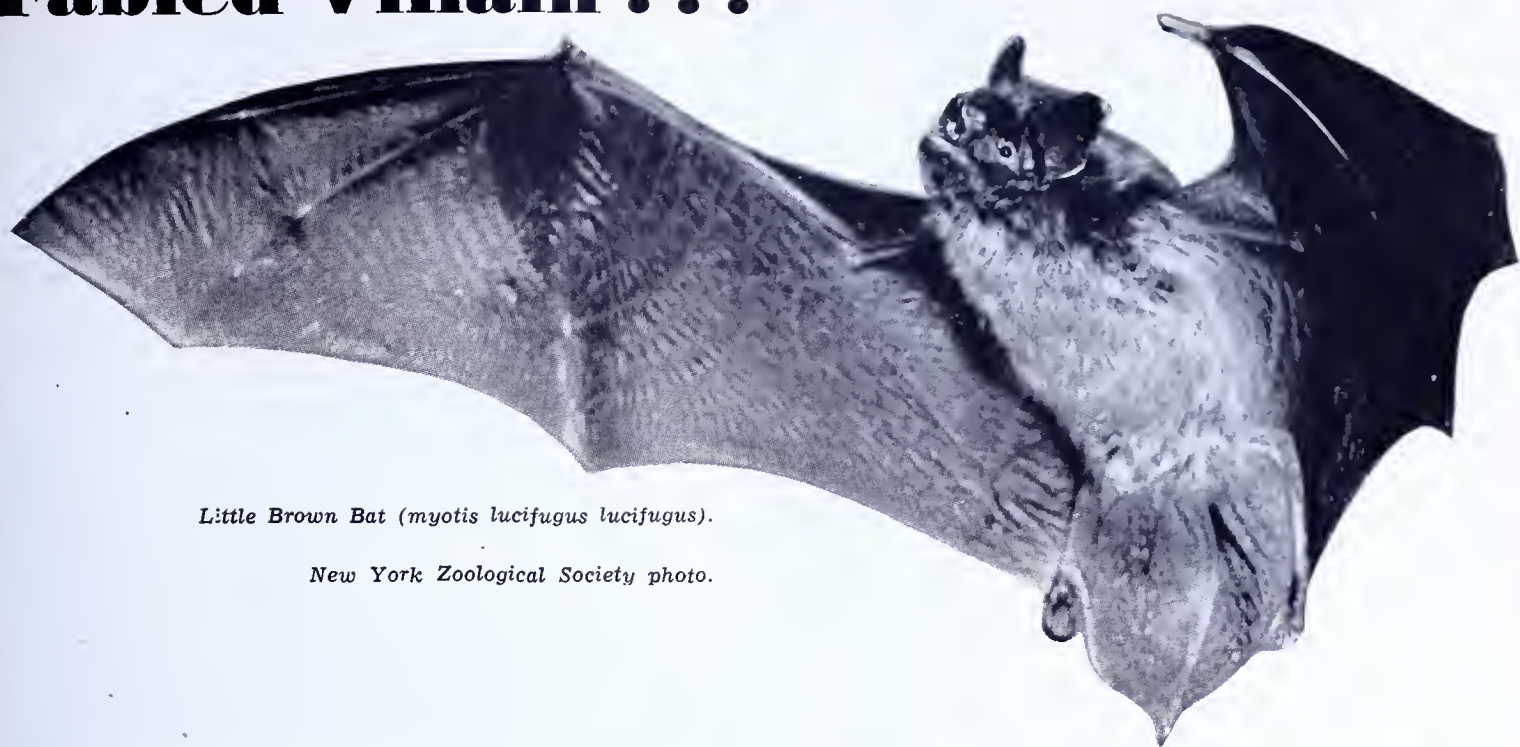
(Turn to page 24)



Courtesy of Dr. Harold N. Johnson, The Rockefeller Foundation.

VAMPIRE BAT, scarcely a lovely creature, has been a villain of many horror stories and superstitions. Found only in South America, Mexico and Central America there are no vampires north of Mexico. Sleepers in the southern countries are frequently bitten, vampire favors the toe, elbow, nose or ear, rarely the neck as fabled. Wound hemorrhages profusely but sleeper feels no pain, rather a happy, soothed feeling. The vampire carries the terrible and often fatal rabies disease.

Fabled Villain . . .



Little Brown Bat (myotis lucifugus lucifugus).

New York Zoological Society photo.

THE BAT

By WILBERT NATHAN SAVAGE

From here, there and everywhere, we get reports of bats taking dry flies on the backcast. Most anglers have a horror of this only mammal that flies but contrary to general opinion he doesn't live up to his Hallowe'en reputation of evil omens and legend.

THE purple-gold of twilight had reluctantly merged into the deep and somber shadows of early night when a fisherman in a rowboat on Fayette County's Yough Flood-Control dam was overtaken by the most startling phenomenon encountered in a score of years of intriguing alliance with bona fide Waltonites.

Drifting along a heavily wooded shoreline, he adroitly whipped out one of his own hand-tied flies in eager effort to bring up from the bluish depths a rainbow large enough to justify exhibition of the big one that *didn't* get away. Then it happened. His fly was settling nicely at the edge of a shore growth of reed-grass when an object snatched the fly and took it—not below the water's placid surface—but heavenward!

Momentarily speechless and motionless, the angler managed to bestir himself in time to break the abruptness of the end-of-the-line impact wrought by the mysterious creature's erratic flight.

Later, the fisherman related, "When I had the culprit hauled in near enough for identification I was, to make an understatement, astonished—for I had snagged onto a brown bat with a twelve-inch wingspread. I've always been a little superstitious about such bizarre things, and quickly remembering the bat's close association with Hallowe'en black cats and witches, I immediately snuffed out the urge for any further testing of my luck on that particular evening . . ."

How many times this occurrence is

duplicated every year in Pennsylvania and in the United States as a whole is a good topic for random speculation, but at best the figure could not be digitally impressive. Of course the reason for such behavior in the bat kingdom is no secret or enigma. The creature is merely out in quest of succulent individuals in virtually any order of night flying insects; and in rare instances he makes the painful mistake of successfully pursuing a fisherman's fly—one that has just been snapped out into the uncertain gloom of gathering night.

Certain it is that the bat is not aggressive enough to deliberately flirt with known perils, such as the lure posing in clever disguise. For actually almost all members of the order *Chiroptera* are timid and retiring unless cornered and provoked beyond all reason.

Bats have for centuries been the target of fallacies, misconceptions, groundless superstitions, weird legends, and mystic fables. But in reality this much-maligned mammal rarely deserves the hostility showered upon him—save for the indiscreet little vampire bat and the destructive fruit-eating bat, neither of which occur in North America.

Pennsylvania, according to authentic survey, has ten species of bats, some of which must be considered extremely rare within the boundaries. But it is difficult to bring exactly ten types into studied focus, for other members of the order may from time to time drift in during migration periods, or in the normal process of nocturnal flights near the borders of surrounding states.

The big brown bat is one of the commonest of our Pennsylvania spe-

cies. It is a dark brown or sepia color above and the underparts are slightly paler. The ears and membranes are blackish. It has a total length of about four and one-half inches. Like all other native bats it is insectivorous, usually making its appearance rather late in the evening. It flies at a low level, often skimming so close to water surfaces that it picks up a drink while in motion (hence the fisherman's fly incident.) It prefers to be near civilization. The big brown bat is supposed to be migratory, but in the Keystone State it almost invariably hibernates in attics, caves, and hollow trees during winter months. During mild spells of weather it may venture forth in search of a snack. Its favorite foods are June beetles, mosquitoes, and other pestiferous night flying insects. Like all bats, the big brown bat has numerous sharp teeth with many cusps for crushing the armored bodies of beetles and other insects. (It may be interesting to note here that scientists have catalogued some 250,000 different types of beetles throughout the world—a varied menu for Mr. Bat!).

One of the most uncommon Pennsylvania bats is the evening or twilight bat. It is small, ranging in color tone from mouse-gray to red-brown, and is strictly gregarious. A southern species, it is known almost exclusively in the vicinity of Waynesburg, Greene County.

The hoary bat also is far from common, but it has been reported from almost every section of the State. A little larger than the big brown bat, the hoary bat may possess a coat of varying colors—from mixtures of white and yellowish brown to deep umber-brown and gray. Its lips, chin, and cheeks are comically sprinkled with short black hairs, giving it an "old man" appearance. The hoary bat apparently doesn't cater very much to civilization; he prefers to remain in the timber country, spending his days conventionally hanging head downward from twigs, and his nights gleefully swooping upon the largest insects he can pick up on his "radar" screen.

Unless you are familiar with the bat's makeup—and few people are!—use of the term "radar" may be meaningless and bewildering. In reality, the bat can justly lay claim to origin of radar's applied working principles. For its wings are heavily veined with nerves so sensitive that it actually picks up the slightest vi-



Courtesy of the American Museum of Natural History.

LITTLE BROWN BATS (*Myotis lucifugus* Le Conte) native to Pennsylvania hibernating in cave. Bear Cave in Westmoreland county supplies shelter for great numbers of little brown bats every winter hanging head down in bat fashion.

bration caused in the atmosphere by friction of air currents against solid objects, or by rebounding high frequency waves which have been emitted by the bat against objects in or near the course of flight.

Experimenters have sealed up the eyes of bats with gum (let it here be appropriately pointed out that bats do possess very keen vision, thus stamping the "blind as a bat" saying as grossly inapplicable), and released them in a room from which many ropes were suspended from the ceiling. The bats flitted about with their customary bullet speed, without striking

a single one of the obstacles! Little wonder that the creature is credited with having the most wonderful sense organs in the world!

If you have ever held a bat in your hand—and this can safely be done with thin kid gloves—you probably noticed that it trembled all over. This was not a reaction brought about by fright, but a protest against abuse of a network of nerves so sensitive that your touch was in effect like that of a rasping file. The animal's ears and the tip of its nose share this same sensitivity.

Pygmy bats are generally distrib-



Courtesy of the American Museum of Natural History.

HOARY BAT, while not common, has been reported from almost every section of Pennsylvania. A bit larger than the big brown bat, he is sprinkled with short black hairs, giving him an old man's appearance. He prefers to remain in timber country swooping down on insects in the evening that he picks up on his "radar" screen.

BIG BROWN BAT is most common in Pennsylvania. It is dark brown or sepia about four and a half inches in length. The creature is insectivorous, does not carry bed bugs and does not, as commonly supposed, love to get in women's hair. It hibernates in attics, caves and hollow trees during the winter.

Courtesy of the American Museum of Natural History.



uted over the country, and Pennsylvania has two distinct types—the New York pygmy and the Georgia pygmy. The former is rare in the State, while the latter is fairly plentiful in southwestern and southeastern counties. Both are small, seldom more than three inches long, and the general coloring is yellowish with many black or brown hairs on the dorsal surface.

The little brown bat is similar in coloration to its larger cousin, but its ears and tail are proportionately longer, although its body is smaller, usually averaging about 3½ inches in length. Even more common than the big brown bat, the diminutive kin sometimes band together in groups of several thousand at hibernating time. Bear Cave in Westmoreland county supplies shelter for great numbers of little brown bats every winter. Albinos are said to be more common among this species than any other type.

Most beautiful of our native bats is the red bat. Its color may range from bright reddish brown to a yellowish light red. Each shoulder is adorned by a white patch. With a total length of about four inches it has a wing-spread of approximately one foot. One of the first bats to venture forth in the evening, it takes special delight in searching for food in houses, churches, barns, and other buildings. More than any other bat, the red bat is the most solitary in its habits.

In certain swampy regions of the State one can find the silver-haired bat, but it is not numerous. It is about

the same in size as the red bat, brownish black in color, with the dorsal surface marked by a scattered mass of white-tipped hairs. It is most abundant in Pymatuning Swamp in Mercer and Crawford counties. It is especially active in its habit of skimming close to water surfaces, picking up floating insects, so watch out for this fellow, Mr. Fisherman!

Say's bat has a limited distribution in Pennsylvania. It is so similar to the little brown bat that it is often confused with that species. It prefers the rural sections, and may never be found in cities. It has been reported from Somerset, Greene, Fayette, Allegheny, and Cambria counties.

The "mystery" bat of Pennsylvania is the Indiana bat. Only two specimens

have been observed, both in Delaney Cave in Fayette county. This absence of numbers has led some naturalists to believe that the creatures were "imported" in railway box-cars, slatted livestock cars, or by some other out-of-State conveyance in which the bats may have been in daytime hiding at the beginning of their journey.

One of the most ridiculous misconceptions about bats is the age-old theory that they are avowed under-the-wing peddlers of bedbugs. They may have fleas, just as any other animal may have parasites, but the bedbug story is wholly without foundation.

Another popular fallacy is that bats take a special fiendish delight in
(Turn to page 25)

The



“SEA GULL”

That Came Back

Herring gulls, or “sea gulls” are now a regular part of the birdlife along rivers and lakes in Pennsylvania

By JOHN K. TERRES

IT USED to affect me strangely to see a white gull flying up the Susquehanna River. It wasn't exactly like seeing a fish out of water, but I had the uncomfortable feeling that the bird wasn't at home so far away from the ocean.

Perhaps, like yourself, I was accustomed to seeing the white, adult herring gulls, with their black-tipped wings, following our fishing boat into Fortescue on the Delaware, or into Barnegat Bay or Brielle on the New Jersey coast. On the way in, you watched your captain or his mate clean your fish, and noted how the screaming “sea gulls” came in close to swoop down and gracefully pick up the scraps that the men threw in the water. The herring gull is an opportunist, and he'll take a free meal anytime he can get it.

Along with the white, mature herring gulls, you saw dark ones of about the same size that are a mottled brown-gray or gray-brown. These are the immature herring gulls—young

ones that don't acquire the grown-up, white plumage and pearl-gray, back feathers of the adult until they are three years old. Along the coast, these “sea gulls” were “right” but away from it, they seemed out of place.

Today, after more than 20 years of watching birds, I am accustomed to seeing herring gulls flying up inland streams or resting quietly on fresh water ponds a long way from the sea. You have probably seen them flying over your favorite, fresh-water fishing grounds, their white heads turning

right and left, their pale yellow eyes scanning the water and beach. They are always looking for dead fish or any other decaying refuse that is afloat or ashore. Herring gulls are useful scavengers that clean up dead and polluting animal life. They seldom catch live fish because they are poor divers.

In Pennsylvania, I have seen them in many places, even in a field in early spring, following a farmer for the mice, worms and grubs that he plowed out of the ground. Professor Herbert



IMMATURE GULL about to breakfast on dead fish. Young gulls are mottled gray brown, do not acquire adult white or pearly-gray plumage until they are three years old. Gulls have been reported to live 50 years but seldom attain this age in the wild.

ADULT GULL has webbed feet and can swim swiftly if necessary, usually depends on flight to retreat. They seem out of place in our Susquehanna waters but during rough weather in ocean or bay areas or when Nor'easters threaten they journey in numbers to Pennsylvania waters.





Allan D. Cruickshank photo from National Audubon Society

YOUNG HERRING GULLS blend almost perfectly with rocks and are difficult to spot. The young are fed pre-digested food by parents. Growing rapidly, in five to six weeks they are as large as the adults and able to fly.



W. Bryant Tyrell photo from National Audubon Society.

NEST OF HERRING GULLS is made of grass, seaweed, moss or sticks. Parents usually nest on ground although if alarmed continually, will nest in trees. Female ordinarily lays three eggs which hatch in about 26 days.

H. Beck of Lancaster is an authority on the birds of Pennsylvania. He told me that herring gulls may be seen rather regularly all winter along the Susquehanna between the Susquehanna Flats, in Maryland, and Harrisburg. They are here from about mid-October to the middle of April when many of them leave Pennsylvania for their main breeding grounds in Labrador. On April 1, 1950, Professor Beck saw at least 20,000 herring gulls pass northwest, up the Susquehanna in a spring migration flight that lasted eight hours! It might have been impossible to see that many herring gulls in the entire United States, 60 years ago.

At the beginning of this century, a

conservationist estimated that there weren't more than 15,000 herring gulls left on their breeding grounds in the northern United States. Off the coast of Maine, the National Association of Audubon Societies, now the National Audubon Society, had set up island sanctuaries to protect the breeding gulls from people who collected and ate their eggs. For many years, war-

dens were posted there to watch over the birds.

During the past 30 years, herring gulls, under protection, have increased tremendously and have gradually extended their nesting range along our Atlantic coast from Maine and Massachusetts southward to Long Island.

In western Pennsylvania the herring
(Turn to page 26)

HERRING GULLS feeding in surf. They love to perch on stakes and old wharf pilings where they get good view of waterscape for possible signs of food or warn others of danger. Fairly sociable, the gulls are usually found in large numbers together.

Allan D. Cruickshank photo from National Audubon Society.



STATUS OF THE SEA LAMPREY

in the Pennsylvania Waters of Lake Erie - 1952

By ALFRED LARSEN

Fishery Biologist, Erie State Fish Hatchery

EFFORTS to determine the status of the sea lamprey (*Petromyzon marinus*) with particular reference to its spawning run in Pennsylvania tributaries of Lake Erie and its effects upon the commercial fishing industry of Pennsylvania were continued during the 1952 commercial fishing season.

During the spring of 1950, efforts yielded a total of fifteen sea lampreys—eight sexually mature and seven young.

Data to date concerning the sea lamprey was obtained through the following methods:

- (1) walking tributaries;
contacting commercial fishermen, including trips to their field of operation;
- (3) contacting sport fishermen (smelt and sucker fishermen).

All the major tributaries entering Lake Erie from the Ohio borderline to the New York line were visited and walked a number of times from early April up through the middle of July with negative results. This included visits to these streams in the night as well as day.

Up to the present time, a total of fourteen sea lampreys has been received from commercial fishermen ranging in size from 6.9 inches to 8.0 inches, with the exception of one specimen which measured 11.5 inches. These lampreys were obtained during the period from May 7, 1952, through June 10, 1952. No sea lampreys were obtained or reported by commercial fishermen after June 10, 1952. Twelve of the above lampreys were received from the Ralph Fish

Company (a pound net fisherman located at the mouth of Walnut Creek), and the remaining two were taken by gill net fishermen operating from the port of Erie. The above lampreys were attached to the following commercial fish:

White bass (*Lepibema chrysops*)
Blue pikeperch (*Stizostedion vitreum glaucum*)
Whitefish (*Coregonus clupeaformis*)
Sheepshead (*Aplodinotus grunniens*)

A number of trips was made on commercial boats (both gill net and pound boats) to look for sea lampreys or lamprey-scarred fish in the catches. On one trip, on a pound net boat, a sea lamprey of seven inches was seen attached to a large sheepshead. No lamprey-scarred fish were seen on these trips.

None of the commercial fishermen, when questioned, believed the sea lamprey to be increasing in numbers over previous years. They did mention the fact that the lampreys captured by them in years past were considerably larger than those obtained so far this year. Up to the present time only one lamprey-scarred fish, a whitefish, has been reported from a commercial house (scarred to the point where it could not be sold).

Sport fishermen fishing for smelt and suckers in the Pennsylvania tributaries of Lake Erie were contacted and asked to report any lampreys observed in the streams fished, and, if possible, to bring the specimens in to the hatchery for identification. Several fishermen reported seeing what they believed to be sea lampreys in Elk Creek and Walnut Creek, but the specimens were not obtained. One lamprey, thought to be either a silver lamprey (*Ichthyomyzon unicuspis*) or an Ohio lamprey (*Ichthyomyzon bdellium*), was taken by a smelt fisherman in Four Mile Creek on May 8, 1952. This specimen measured 11.8 inches.

For experimental purposes, four of the sea lampreys—from seven inches to eleven and one-half inches—were placed in a large tank which con-

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A careful check among the commercial fishermen at Erie resulted in only fourteen reported lamprey specimens. The above photo shows a seven-inch sea lamprey attached to a twelve-inch bluepike.





The blow snake flattens his hood like a cobra.



He's the world's biggest bluffer!



His real name is hog-nose snake. His upturned snout accounts for it.



He plays his last card, feigning death when his bluff fails.

The **ACE** of **BLUFFERS**

By **BEN EAST**

Mr. East, nationally known writer and naturalist, is Field Editor for Outdoor Life. His many articles have appeared in more publications than we have space to mention. Some of his finest outdoor writing and photography has appeared in Natural History Magazine, American Museum of Natural History, New York.

IT WAS a hot July day, with bright sun overhead. Bald Eagle Creek was low and crystal clear. Brown trout are wary under such conditions as those, and Dave Greenawalt and I weren't having much luck. When we met in the middle of the forenoon we sat down on a convenient rock to smoke and have a chat about the in-born cunning of the brown. He has forgotten more canniness than the brook and rainbow together will ever learn, we agreed.

We were sitting there when a stranger rounded the bend above and came hurrying down to us at a half run. When he came close enough we could see something was wrong. The man was pale as a ghost, with fright stamped plainly on his face.

He didn't wait for us to question him. He started to blurt out his story while he was still a dozen paces away.

"I just had the closest call of my life!" he panted. "Snake! Damned puff adder! He almost got me."

He was wearing high boots and carrying a creel, but no rod.

"Where's your fish pole?" I asked him.

"Lost it," the fellow said. His voice was pitched high and he was waving his arms like a windmill. "Dropped it, and didn't wait to pick it up. I climbed out of the creek and there he was up on the bank, lookin' me right in the eye!" He sat limply down on the rock beside us. "I feel sort of sick," he wound up.

"Puff adder, eh?" Dave asked mildly.

I could see the corners of his mouth twitch and I knew he was holding back a grin. Snakes have been sort of a hobby with him for years, as they have with me. We had fooled around with puff adders more times than we could remember.

"You bet," the stranger said emphatically. "Ever see one?"

"Plenty of 'em," I agreed.

"They're bad," the man asserted. "They don't have to bite you. They just blow in your face, and you drop right in your tracks."

"Friend," Dave said quietly, "you've been scared almost out of your pants by the biggest bluffer that ever crawled through the grass."

"Bluffer? You think that puff adder didn't mean business?"

"Likely he did," Dave admitted, "but a puff adder's business wouldn't hurt a two-year-old kid."

"You're crazy," the stranger said flatly.

Dave laughed. "Let's go back and get your rod," he suggested.

"You can get it and keep it for all of me."

"I don't want it," Dave assured him, "but we'll pick it up for you. You come along, just far enough to watch."

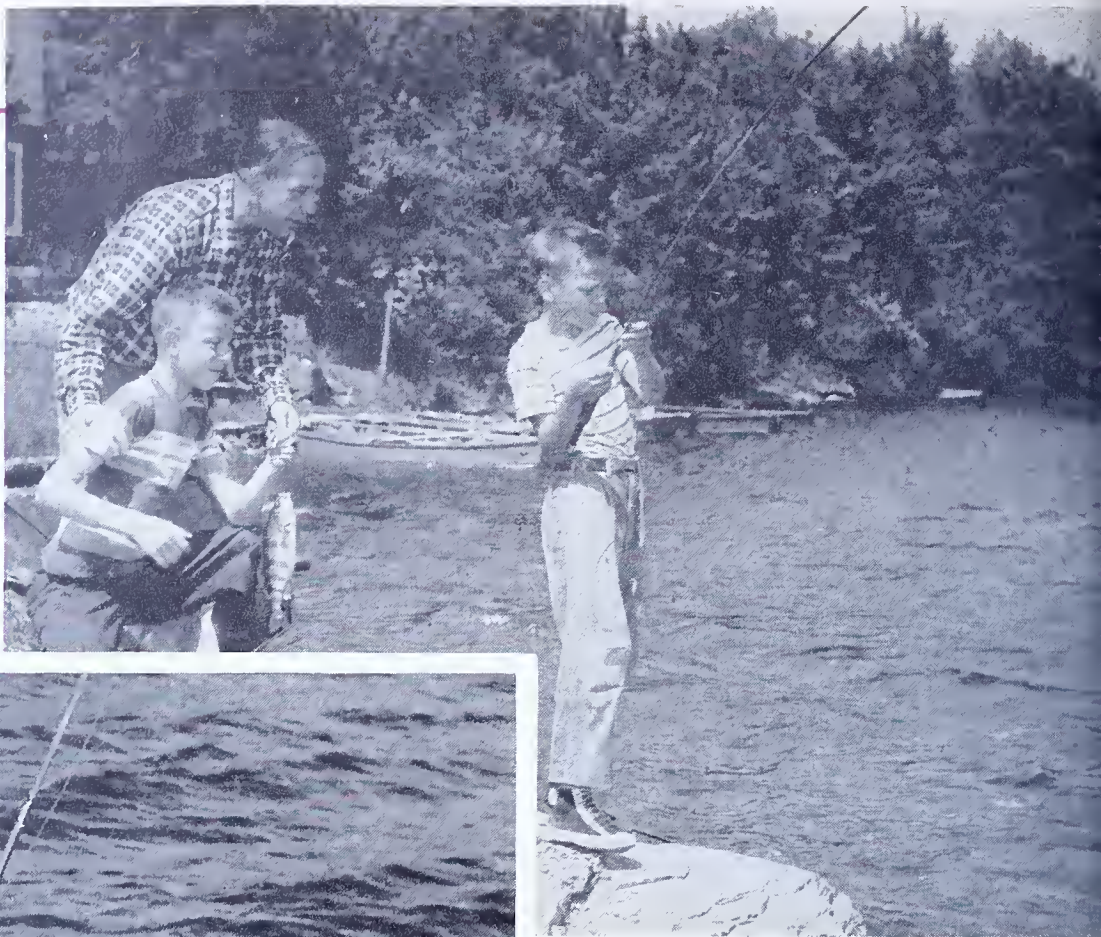
It took some coaxing, but we talked him into it. We walked back up the creek a couple of hundred yards and found the puff adder lying on an open patch of sand, half in the shadow of a low bush. The snake was a little better than two feet long, thick and

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Harris Breth offers encouragement to this lad intent on landing his fish.

The first bite!

A little coaching from Fish Warden Leroy Noll netted this youngster a big bluegill.



Boys OUT FISHIN'

Photos by George Gordon
Fish Commission Photographer

Surely one of the most heart-warming sights along our streams and lakes is boys fishing. Extending from early spring, throughout the long summer months and into the crisp days of October, fishing is a favorite pastime of boys. It matters little to them where they fish or what they catch as long as they can fish. A little help and a minimum of tackle is all a feller needs to start him on the right road.

PENNSYLVANIA ANGLER



A scientific examination of bullheads, perch and bluegills.



Settin' the hook on a nice one!

Time to go home. The day's catch—perhaps bigger than usual—brings a big smile to each face.





▲ BEAUTIFUL SCENERY, unexcelled anywhere in the state, this view a few miles above Meshoppen, Pa., overlooks the winding Susquehanna. Bass, walleyes and other game fish provide wonderful fishing in every pool and riffle.



FLOAT FISHING

The Susquehanna

By DON SHINER

Magnificent scenery, good fellowship and wonderful fishing is the story of a float fishing trip down the historic Susquehanna river. Trip pictured here was made in one day but it's entirely possible to spend a week or more floating and fishing the more than 400-mile course downstream. But come along as we take a short, sample float down the North Branch of Pennsylvania's famous scenic waterway.

➤ ROLLING HILLS and farmlands greeted the eye party while the river itself seemed to flow onward as a ribbon. We caught and released fish throughout the time out to stretch our legs, eat lunch and rest.

▼ STRIKE! After only ten minutes drift a smallmouth bass bit our trolling lines and bored down river. There's the first fish of the day that raises the blood pressure.



◀ **EARLY MORNING FOG** covered river as we parked our cars, in the dawn assembled our tackle, distributed bait and shoved off downstream. Three boats took our members on this float trip.

➤ **DEEP RUNNING PLUG** on spinning outfit fools a husky smallmouth and here he is in the net, after a bruising battle. Two pounders are common in this stretch of the river.

▼ **BOATS DRIFT** with the current as they will. We cast plugs and artificials shoreward while trolling a line baited with minnow or hellgrammite.

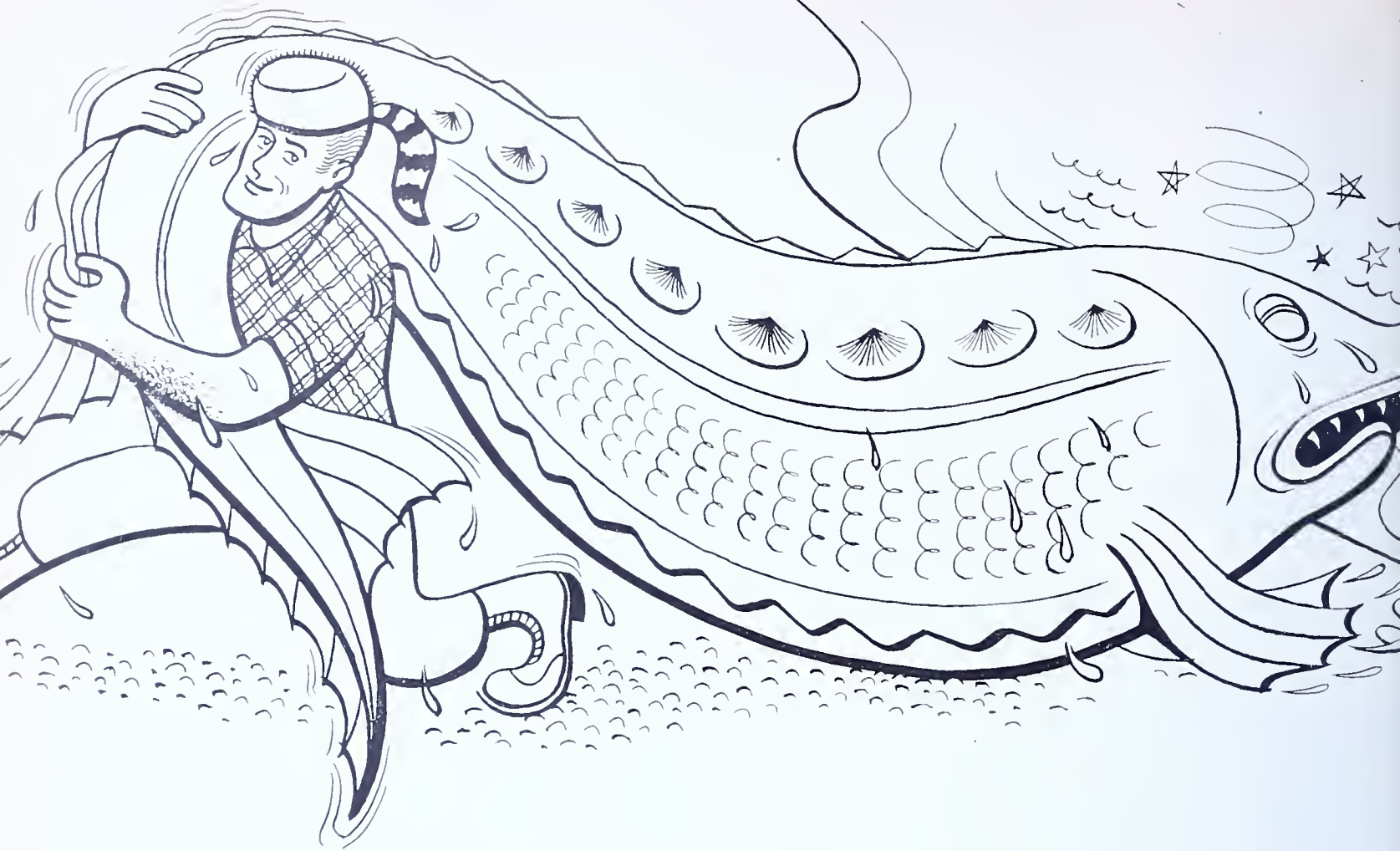


▼ **WELCOME SPRING** provides dry party with icy, crystal clear water. This one was found flowing from a pipe driven deeply into the native rock. Everyone agreed it was like drinking nectar from the gods!



➤ **TUNKHANNOCK**, our journey's end is reached all too soon at sundown on this short trip. We refuel our motors and head back upriver to the boat landing. Traveling light with only bare essentials, trip cost each member about two dollars. Next winter we'll talk about this trip, those that got away and we all vow to go back again another summer day for another glorious float trip down the lazy river.





By JAMES STEVENS

Reprinted from American Forests

DAVY

and the

Stupenjus Sturgeon

WELL along in the summer of 1904 Uncle Ben Cotter began to have trouble in meeting his bills, most of all in paying the wages due seven men, four horses and a boy for working his sawmill and logging outfit in the piney fringe of the Seven Devils Mountains.

"Draw poker," I heard Aunt Min Cotter tell Sue Makin, the hired girl. "Ever' time Ben hauls a load of lumber down to Weiser to sell he gits into a game of draw. I know him."

It worried me. I was the boy, a 12-year-old, holding my first job away from home. It paid four bits and board for a ten-hour day that often ran into 12, with such chores as helping the women in the cookhouse. Now I had nearly two months' pay coming. So did the others.

Then Uncle Ben came back from a haul of a wagonload of his best air-dried and dressed items to market

down on the River Snake. He was two days overdue.

"Had a time selling her for what she was worth," Uncle Ben said of his lumber. "Then luck turned bright, for not only did Dr. Reno Numbers buy the load as finish for his new house but he put me in with a rich surgeon who was visiting him from the East. This tenderfoot, he hankered for a Snake River sturgeon. I took him out and got him one. I tell you, and I'd take oath to it, that sturgeon was so much longer than the wagon bed that its tail drug the ground. I had to rig up a ginpole to tote its tail on the way to where the doc could get the sturgeon mounted."

It was a Saturday and sundown time. All hands had waited anxiously around the yard in front of the bunkshack until Uncle Ben had finished his supper. It was a powerful relief

to all when he came down with a buckskin sack of silver and gold and paid each man his due. Now all were pleased to hearken while he had his say.

Uncle Ben sat down on a pine block and picked his teeth for a minute. Then he said, "Reached a mite over 12 feet from sucker mouth to prong tail. Tipped the scale at exactly 1015 pounds. About 125 of 'em were roe for she was that kind of sturgeon. The surgeon paid me off at four bits, 50 cents a pound, and offered me a bonus. I but thanked him kindly, and took my due."

"Is it yourself you're talking about, Uncle Ben?" asked a logger. "Or is it Davy Crockett?"

Back in the cookhouse Aunt Min had asked him exactly the same question when he came in with his story. He'd taken it good-naturedly then, and he did now. In a minute he was

off on the cue, with another yarn about Davy Crockett's adventures in the old Oregon country as it was in the days before the covered wagons.

My surgeon's sturgeon is stupenjus as the breed goes nowadays (Uncle Ben Cotter went on to tell). But it would have been considered a runt on the Lower Columbia River back in the day when Davy Crockett followed Lewis and Clark and tamed the country so's to make it fit for settlement. One mighty stumbling block was Big Dulcie, a grandma sturgeon who was old enough to have quit sea-going and upstream spawning but young enough to loom as a threat to river navigation for years to come.

Dulcie (it was Davy himself who named her) was no kind of carnivorous monstaceous critter such as Davy had been bucking up against in his other tries at cleaning up the Oregon country. She was only too big for her own good and the good of others. Let her hear a commotion of Indian war canoes above her, and come to surface from curiosity, then the canoes she'd upset and the waves she'd set going would drown out an entire tribe. Dulcie had no teeth, of course, and she sucked in her meals, sturgeon style. One big feed off the river bottom would leave a hole to keep a whirlpool running for a week.

Back on the Mississippi youthsom Davy Crockett had been warned by old sailors:

"If you are fool enough to make for Oregon, keep away from the Lower Columby. There are wolf trees on the banks and sturgeons in the stream. The queen sturgeon is worse than all the rest put together. She has a craw that is the equal of any rock crusher. She'll turn you to dust. Stay home, young man, and grow up!"

She meant no harm in her heart, the sailors said. When a sailing ship would roll in over the bar it looked to the hugeaceous sturgeon as a critter that was just her size for a playmate. When a cannon was fired at her the ball would only bounce from the bony armor plate of her scales and spine plates, giving her a tickle and no more. Then she'd suck in air till it would pull the ship over on its nigh side, and right away spout out a blast fit to turn the ship back over to its off side. Back and forth the ship'd go as she played her game, until sailors who'd gone through typhoons without getting seasick would feel their innards crawl for daylight.

Davy Crockett had hearkened and took note. He knew the sturgeon breeds of his parts and the North and East—the rock, the rubbernose, the shovelhead, the switchtail, the hackle-back and the sand sturgeons. He knew how angelicalorous different all were from their evil kinfolks, the alligator gars of the Mississippi. Davy expected the gars were the biggest river fish on earth. Surely none could be more wicked in their ways. Pizen, too. Davy had seen buzzards keel over and turn up their claws from no gorging but simple swallows of alligator gar eggs. He had a pair of gloves studded with the teeth of an alligator gar. With them on he could throw away Killdevil, his rifle, and Big Butcher, his knife, and out-bite a panther or out-claw a bear.

He had them on the morning when he first laid eyes on the queen sturgeon and gave her the name she is remembered by. And at the same time Big Dulcie spied him. She had been roaming up river to the Cascades and was on her way back home in the tidal river. What she saw was so amazing that she stood on her tail, rearing out of the water, her spout mouth agape and her kind and humorous eyes a-bulging.

For Davy Crockett had his pack of wolf trees out on a flat stretch of bank, making them drill like soldiers. He figured the Oregon country was fairly well cleared up of all dangers but the British, and he aimed to go for them.

The wolf trees saw her, too, and shivered like quaking aspens in the morning sun.

Davy Crockett knew fear as he had never known it before but he let no sign of it show. He made an about face, roared, "Forward—march!" and drilled his company on. Where a wolf tree would stand shivering in his tracks, Davy would rake it down with a glove studded with alligator gar teeth until the critter would faunch and howl back into the line of march.

It was tough treatment, and Davy was sorry for it, but the Oregon country was at stake and he was bound to save it for Hail Columbia, no matter whose feelings were hurt. He would do anything to stave off the British. And as he pondered the grim fact that what the old sailors had told about the queen sturgeon was true, Davy Crockett saw it was his bounden duty to do anything to make the Columbia River safe for navigation. The settlers would need the navigation, no doubt about it.

Right soon Big Dulcie had to go under for a breath of water. The day wore away with a kind of game of hide and seek going on, the enormoarious sturgeon rearing up and going down; now here, now there; up to shore, far away, downstream, upstream, roundabout; until Davy gave up his drilling and simply looked and pondered.

The wolf trees stood on their flat heads for a much-needed rest as the day sank into afternoon. Davy Crockett, appearing mighty grim for his years, took out for the bank, following up a notion. It was how he might use himself somehow as human bait to catch Big Dulcie. He knew that he was no Jonah—if once she should swallow him under he was a goner, for surely he would drown. Davy was primed to give his life for his country if it would do some good, but work with Big Butcher inside Big Dulcie under water would not be so simple as his work had been inside Old Boo, the mammoth buff. He had to think of something. Something else.

Davy got himself so lost in thought that he did not see the queen sturgeon come up close to the bank until she gave a kind of cough and cleared her throat yonder. He took a glance so quick his eyeballs burned from friction and saw his mortal peril. Whatever the power was in him that would even cast a spell on the wildest life of the woods and the waters, it was working on Big Dulcie as he had never seen it work before. Her eyes shone on him, as bright as her scales. Her mouth like a barn door was puckered up. She sucked in a sigh and it took Davy off his feet and sailed him aloft. She sighed out and turned him over and set him down on the bank again. Davy tottered over to a cedar, a great tree. He heard another sigh coming and he clutched the cedar's trunk with all his might.

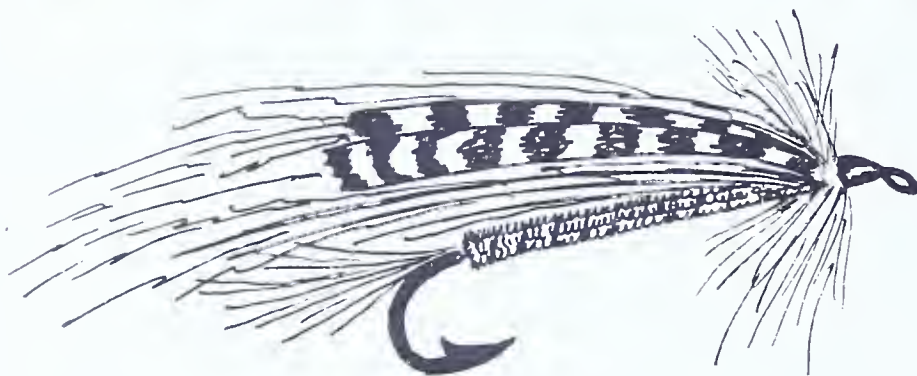
And he held on. The suction tore off his boots and well-nigh unjointed him but the tree stood and his hands held fast to it. They held because of the gloves studded with gar teeth and rawhided to his wrists.

Then the bole broke well above Davy's head. It fell with a thunderoarious shatter. The fall broke the top away and slivered the trunk down to free Davy's hands. He staggered clear to see the sturgeon diving down and foaming away from the roar and splash of the giant cedar's top in the river. The main bole rocked on the

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Stories of Famous Streamer Flies

THE "BUMBLEPUPPY"



WARDEN ROY STEENROD'S VERSION
OF THEODORE GORDON'S FAVORITE "BUMBLEPUPPY"
(As Sketched from the Actual Fly by the Author)

By JOSEPH D. BATES, JR.

When I was preparing my book "Streamer Fly Fishing in Fresh and Salt Water" (D. Van Nostrand Co., Inc., New York City, 1950), I wrote to Roy Steenrod and later went to see him to find out exactly when Theodore Gordon invented the streamer fly. Mr. Steenrod sent me one of Theodore Gordon's Bumblepuppies and said, "The Bumblepuppy meant to Mr. Gordon any fly to which there was no name. He tied many of them. I called on Herman Christian, a fly tyer friend of Gordon's, and we both are of the opinion that the fly I am sending to you was the favorite and the one of which he often spoke as having taken so many fish with in the lakes of Rockland County. I know that Gordon was tying these flies as early as 1880."

Then I wrote to Herman Christian, who fished with Gordon over a long period of years. He also sent me his version of Theodore Gordon's favorite Bumblepuppy and said in part, "A friend of mine was fishing the Moose River (Maine) a few years back and caught his limit of big native trout and landlocked salmon every day with the Bumblepuppy while his friends didn't catch any. Another man caught a brown trout in the Delaware River on the Bumblepuppy while fishing for bass. It weighed thirteen pounds and nine ounces. I have caught many, many bass on it, so it is a real good fly for big fish. It have also caught walleyed pike on it. I am sending you a fly like Mr. Gordon made for me (with the red ribbing), and one like I make (with the white chenille, but no ribbing). Mr. Gordon almost always put a stripe on the body, either of gold, silver, or copper tinsel, or some kind of wool."

In other letters, Mr. Gordon says that he found the Bumblepuppy a killer for striped bass. Evidently he also was the first salt water fly fisherman!

Of course the Bumblepuppies sent
(Turn to page 27)

ANGLERS who enjoy fishing with artificial flies do not always realize that fly fishing began as early as the second century, when a Roman author described a crude sort of wet fly then used on rivers in Macedonia. Fly fishing, however, did not reach its golden age until the days of Isaac Walton and Charles Cotton, a generation or so after Columbus discovered America.

But, until the 1880's, all artificial flies were made to imitate insects. None were designed to simulate baitfish. This seems strange when we realize that minnows and other small fishes are the "meat and potatoes" of gamefish, and that insects make up a minor part of their diet.

The lack of artificial "flies" to resemble baitfish must have seemed strange to Theodore Gordon too because, insofar as I can learn, it was he who developed the first streamer fly, or bucktail. He tied it specifically to imitate baitfish, and he used it most successfully on the rivers of New York state and of Pennsylvania, as his letters (edited by John McDonald in his "The Complete Fly Fisherman") show.

Theodore Gordon is best known as the angler who developed the American dry fly (such as the "Quill Gordon") from samples of flies sent to him by the great English angler and author, F. M. Halford. It is too rarely realized that Gordon deserves his place among angling immortals for giving us the streamer fly, too. He

refers many times in his letters to flies dressed to imitate baitfish. One of the more pertinent comments is contained in one he wrote on January 24, 1903, where he says:

"Some years ago we tried some flies on an entirely different principle, our notion being to turn out something that would have great life and movement and resemble a small bright fish in colouring. If you could see one of these large flies played, salmon-fly fashion, by a series of short jerks of the rod top, and notice how the long fibres expand and contract, how the jungle fowl feathers (in a line with the hook) open and shut, you would see at once that it must be very attractive to any large gamefish. White and silver predominate, but are toned down by long badger hackles and jungle fowl feathers . . . We have taken, with a companion, sixty pike in an afternoon with these flies. Usually the big fish prefer the fly well sunk, but it is more sport when the fish can be seen when they rise . . . They will kill all kinds of game fish, salmon included."

Mr. Gordon called all of his streamer flies or bucktails by the name of "Bumblepuppies." In 1913 he wrote to Roy Steenrod (famous New York state game warden, angler, and close friend of Gordon's) that, "I have taken bass, bream, rock fish, perch, sun fish, pickerel, etc. on Bumblepuppies, not to mention big trout in the Esopus. Good when they are feeding on minnows."



A B C D E

- A. 6'5" light action, reinforced butt section best rod of all.
- B. 6'3" very light action, not enough butt stiffness, excellent for small streams and medium casts.
- C. Converted spinning rod: stiff but with good action on plugs $\frac{3}{8}$ oz. or over. 6'2".
- D. 5'8" Shakespeare light action wonderrod good all-around stick with plenty of power.
- E. 5'6" very light in weight but with medium action. Good rod for the fellow who wants to use a wide range of plug weights.

All are glass, all tubular except D. Ferruling, guide mounting etc. done by author.

AMONG the angling fraternity no innovation within the past quarter century has caused as much comment as has the production and marketing of glass rods. Examine the question and answer columns of our leading fishing authorities and you will note a veritable flood of questions seeking the truth about these relatively new rods. The introduction of anything new is bound to bring questions, but the marketing of glass-plastic rods has stirred a tempest not exceeded by even the mass of inquiries concerning spinning. Since these queries continue, seemingly unabated, it is safe to assume that information about glass-plastic rods, or glass rods as they are usually known, would be of some practical use to many fishermen.

So far as I have been able to learn glass-plastic was first used as a rod building material by the Shakespeare Company immediately after World War II. Since that time literally dozens of different companies have marketed these rods, all claiming differences of one kind or another which make their particular product superior to all others. The truth is, however, that technical knowledge relating to glass-plastics is sufficiently advanced so that differences in rods are due, not to differences in quality of material or even in method of construction, but to differences in design. As has ever been the case, with whatever the material, it is fishermen who produce fishing rods acceptable to other fishermen. Fishing rod materials can be laboratory tested for strength, flexibility, and a host of other features but none of them, however suitable technically, makes good rods until some understanding person properly designs them. That is why many glass rods produced by companies having no previous experience with fishing

rods have been something less than acceptable. That is also why a given model of one company may be vastly superior to another model by the same company, even though materials and construction methods are identical.

Technically all glass-plastic rods are a combination of glass fibers bonded by a plastic resin. Obviously the fibers can vary in several ways such as length, diameter, and arrangement. So too can the resins vary, especially in their basic ingredients. Which, as far as the fisherman is concerned, means only that he must keep in mind that there are good and bad glass rods just as there are good and bad rods of any other material. As with any tackle the safest course when buying a glass rod is to get the best from a company in which you have reason to be confident.

In order to assess the merits of glass rods it is necessary to somewhat limit the field of discussion. Being most familiar with plug or bait rods I shall deal with them exclusively. All such rods possess certain features, more or less obvious, which can be compared and contrasted with one another. These features are length, strength, durability, action, and appearance. Add to these the possible influence of external factors on the material itself and you have about all the variables nailed down.

Glass plug rods are easily available in a wider range of lengths than those of any other material. I don't know of any bamboo or steel rods longer than six feet except those custom made. Glass rods are regularly available as standard equipment in lengths up to six feet three inches. If one desires an even longer rod it is an easy matter to adapt a spinning rod to plug use.

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Glass Rods

Just Fads or Here to Stay?

By LEE DIEHL

Clean Streams Conference Scheduled Nov. 12 in Harrisburg

Penna. State Chamber of Commerce and 12 organizations to participate in first cooperative program.

"Water—Our Greatest Asset" will be the theme of a statewide Clean Streams Conference to be held in Harrisburg on November 12 under sponsorship of the Pennsylvania State Chamber of Commerce and twelve cooperating organizations.

The conference, first cooperative undertaking of its kind in Pennsylvania, will be open to all persons interested in the state's water resources and what is being accomplished under the Commonwealth's clean streams program to correct the misuse of public waters. The program will feature non-technical talks, movies and an open discussion period.

The State Chamber of Commerce, through a special Pollution Abatement Committee made up of industry technicians, has cooperated closely with the State Sanitary Water Board in promoting sound goals for treatment of industrial wastes. The committee has not concerned itself directly with problems of municipal sewage.

"Now, after eight years' experience under the State-directed clean streams program, our committee feels," said Committee Chairman W. B. Hart, of Atlantic Refining Co., Philadelphia, "that this is a good time for all of the Pennsylvania interests affected to review the progress made and assess the problems that remain. Sportsmen, industry, municipalities, and civic groups all have a place in this program."

The luncheon speaker will be Dr. Russell E. Teague, State Secretary of Health and chairman of the Sanitary Water Board, which enforces the Commonwealth's clean streams laws. The board itself has endorsed the November 12 conference and assigned its technical adviser, H. G. Knox, to assist the State Chamber's committee in making arrangements.

The conference will be held in the Penn-Harris Hotel, Harrisburg, opening with a General Electric Company film, "Pipeline to the Clouds," at

10:00 A.M. Various speakers, to be announced later, will trace the development of water pollution, its effect on our economic and recreational resources, and the roles played by both nature and man in combating pollution.

The only charge for attendance at the conference will be for the luncheon. Reservations will be handled by the Pennsylvania State Chamber of Commerce, State Chamber Building, Harrisburg.

In addition to the State Chamber and the Sanitary Water Board, the co-sponsors of the conference include: Academy of Natural Sciences of Philadelphia; Chamber of Commerce of Greater Philadelphia; Chamber of Commerce of Pittsburgh; Graduate School of Public Health, University of Pittsburgh; Pennsylvania Federation of Sportsmen's Clubs; Pennsylvania Federation of Women's Clubs; Pennsylvania Outdoor Writers Association; Pennsylvania Sewage & Industrial Wastes Association; Pennsylvania Water Works Association; State Bureau of Municipal Affairs; and the State Department of Commerce.

Executive Director, C. A. French Addresses Pennsylvania Federation of Sportsmen

On Friday evening, September 19, 1952 in the ballroom of the Penn Harris Hotel at Harrisburg, C. A. French, Executive Director of the Pennsylvania Fish Commission, paid high tribute to the conclave of Pennsylvania sportsmen gathered for their Annual Convention which extended over the period September 19-20 inclusive.

Speaking before a very attentive group representing all the corners of the state, French highlighted his remarks by pointing out. "We are at the present moment perfecting a new system which will materially improve and far better distribute monies now expended for necessary travel expenses by our fish wardens. Up until the present time our field force has been assigned to respective counties and of course they are required to patrol and protect the waters and waterways in that county. We have found however, that many unnecessary miles have been required to travel in order that a warden whose headquarters is at one end of the county and the investigation or patrol duty becomes immediately necessary at the extreme other end of that county. In the future wherein situations of this kind occur and under the new system the warden living in the adjacent county and within close range of the area needing the immediate attention will be required to carry on the work from his headquarters thus eliminating the necessity of the regular county warden from traveling clean across his county for a distance, in many cases as far as seventy-five (75) miles. Under the new system the adjacent county warden can make the investigation or patrol service much easier and more economically. We are convinced that this improved and new system will serve to develop a better enforcement program at a saving of many thousands of dollars each year. This of course is just one phase of the many problems involved in the present warden service and the overall picture will certainly bring about a more satisfactory management."

Mr. French also made a very enlighten-



SCHUYLKILL REGATTA, attracted boating and swimming enthusiasts from all sections of Pennsylvania. After clean up, the Schuylkill is again offering water sports, fishing and outdoor recreation for the public. This photo taken by Warden Tom Karper.

ing report on the three (3) dams which he said are scheduled for completion during 1952. He pointed out the Duman Dam in Cambria County, the Virgin Run Dam in Fayette County and Reining's Pond in Wayne County. These areas which are rapidly approaching completion should be ready for stocking purposes and be available for the 1953 fishing season.

He reported the progress made in the Stream Easement Program since the joint meeting of the Pennsylvania Fish Commission and the executives of the Federation of Sportsmen's Clubs held at Bellefonte in May of this year. The report embraces some thirty-seven (37) additional miles of streams which in turn will be stocked and managed by the Fish Commission, and of course will be open to public fishing. Mr. French also reported a recent conference between members of both the Pennsylvania Fish Commission and the Pennsylvania Game Commission which visited the Lower Woods Pond and Brady's Lake, located on land owned by the Pennsylvania Game Commission. He said that the conference and visit was quite satisfactory and expressed his sincere hope that a plan may eventually develop whereby the Fish Commission will stock and manage these waters, thus creating added areas for public fishing.

In concluding his speech, Mr. French was quite lavish in his praise and appreciation for the fine cooperation extended to the Commission by the members of the various county units of the Pennsylvania Federation of Sportsmen's Clubs in their effort to help the Commission make Pennsylvania a bigger and greater fishing state.

Resolutions effecting Fish and Fishing

Passed at the Meeting of the Pennsylvania Federation of Sportsmen's Clubs at the Fall Convention held at Harrisburg, September 19 and 20

27. NE: Due to the fact the buttons for the 1952 fishing were not delivered until the middle of January 1952, and no fishing license could be bought until the buttons could be delivered.

Whereas it created a lot of misunderstanding and in some places embarrassment, and no one would commit themselves by saying whether it was legal to fish or not.

And Whereas it was necessary for the Penna. Dept. of Revenue to extend the 1951 fishing license for the month of January 1952.

Now Therefore Be It Resolved that the Penna. Dept. of Revenue see to it, to have the fishing license and buttons, available at least thirty days in advance or by the first day of the preceding year, the month of December.

The said buttons to be bought from a Penna. Dealer, and made in Penna. and made of a No. 1 quality.

28. NE: Due to the fact that the present system of appointing special fish wardens is nothing more than a hit and miss proposition, and any one who is interested can get appointed a special fish warden.

Whereas: We know that a special Fish Warden gets no pay, and we know that he gets no mileage for the use of his car, that he uses. We know that no man can afford to spend a day, or night to check and apprehend violators, especially while working with the regular Fish Warden on road blocks, without some kind of compensation.

Whereas, the Special Warden has no protection and if he gets into any difficulties he might lose all of his life savings.

Now Therefore Be it Resolved, that the Fish Commission, set up a way or means whereby the Special Fish Wardens will have to take an examination for appointment, same as the deputy game protectors, and to give the special fish wardens the same protection and compensation as the deputy game protectors are getting.



UNDERSIZE PICKEREL IN BOOT and live bait can failed to fool Deputy Fish Wardens Paul Nicholas, Richard Owens and Willard Reauther shown above with example of violations in Lackawanna county. About 8 violators were nabbed mostly for undersized pickerel and exceeding legal limit. State police cooperated with Wardens Keith Harter and Max Knoll in apprehending fishermen. Photo is by Special Fish Warden Ed. Palski.

29. NC: Whereas: The experiments being conducted by the State of Michigan on a six mile section of the North Branch of the Au Sable River strongly indicate the need for a change in our conservation endeavors in regards to trout fishing.

Therefore Be it Resolved: That the Penna. Federation of Sportsmen's Clubs through an appropriate committee, conduct an investigation of the experiments, and report their findings to the next convention of the federation.

30. C: Whereas the fishing pressure has increased and Whereas there are apparently insufficient funds to, (1) increase the number of wardens, or (2) meet the expenses incurred in distribution and enforcement, or (3) increase the propagation and distribution of fish,

Therefore Be It Resolved, that legislature increase the fishing license fee to \$2.50 to provide sufficient monies to carry on a program to meet the increased demands of this sport.

33. SC: Whereas, Present statutes with reference to the regulation of the taking of fish authorize the use of any means "with the exception of explosives and poison," and

Where, the prohibition against the use of poison prevents the Fish Commission, under its scientific permit, from quickly and efficiently changing the species of fish in various lakes, ponds and dams, and Whereas, poison can be used safely, and such changes in species are frequently desirable,

Now Be It Resolved that the Legislature be requested to amend the present law to delete the word "poison" from the prohibited means of taking fish by the Fish Commission.

35. SE: Resolved, That present legislation permitting fishing from March 14th to April 15th in rivers, lakes and ponds not stocked with trout be amended to include "Canals" but not including head or tail races of mills not stocked with trout.

36. NW: Whereas: A resolution which originated in the Northwest Division of the Pennsylvania Federation of Sportsmen's Clubs was adopted by such federation prior to the 1951 session of the Pennsylvania General Assembly petitioning for legislation (H-1246) (1951 Farm Pond Bill), and,

Whereas: Such a bill was introduced in the Legislature but held in committee as of the adjournment of the 1951 session of the General Assembly,

Now Therefore, Be It Resolved: That the Pennsylvania Federation of Sportsmen's Clubs re-affirm its petition to the General Assembly for the renewal of such legislation with license fee for farm ponds of the nature contained in H-1246 of 1951 Session of the General Assembly, being held to one dollar (\$1).

POLLUTION

37. SC: Whereas the Pennsylvania Federation of Sportsmen's Clubs is in accord with the Pure Stream Laws of the State of Pennsylvania.

Be It Therefore Resolved that the Pennsylvania Federation of Sportsmen's Clubs petition the Sanitary Water Board and the Attorney General to bring further pressure to bear on the municipalities in the Juniata Valley watershed to the end that proper steps be taken to eliminate industrial waste and sewage in the streams.

38. NW: Whereas; In Forest County, there is pollution in Coon Creek and Tom's Run, and

Whereas, this pollution is started at the sources of the streams and can be remedied with a small amount of work on both streams, and

Whereas: Tom's Run is in the heart of the State Park Cook Forest which is frequented by thousands of people each year,

Therefore Be It Resolved: That the Pennsylvania Federation of Sportsmen's Clubs be asked for support in having the State clean these two streams.

HOW LONG DO THEY LIVE?

(From page 5)

bitious person would corral a herd of them and keep them under observation for many years. But this is obviously a task not likely to be undertaken in the near future.

Almost all cases of great age in human beings are based upon hearsay rather than upon registered birth records. Indeed, hundreds of years have passed since some of the most famous "record holders" lived. Some of the most frequently cited ancients include Henry Jenkins (169 years), Thomas Parr (152), Katherine, Countess of Desmond (140), and Christen Drakenburg (146).

In a recent book written by statisticians of the Metropolitan Life Insurance Company, the reported age of Christen Drakenburg is the only one taken at all seriously. The records of this individual are thought to be reasonably reliable, although it must be admitted that even these may be incorrect. Drakenburg, a Dane, was said to have lived from 1626 to 1772, or 146 years. That he was vigorous well past the prime for most men is supported by the statement that he married at 111, and that after the death of his wife he proposed marriage to several other women when a mere 130 years of age. Surprisingly, perhaps, all these suits were rejected.

Certain other investigators, however, do not recognize the claim of the Danes that this countryman of theirs should be extended the victory wreath for having outlived all other modern human Methuselahs. Dr. Maurice Er-

nest, English biologist who has investigated the question of human longevity, would award the prize to a Canadian, one Pierre Joubert, whose record is more modest. This man, born in Quebec County in 1701, is thought to have lived more than 113 years.

Coming to more recent times, we find that in 1945 an African native died in Johannesburg who was alleged to have been 130 years old. According to newspaper reports, several investigations of this matter were conducted, and although the investigating agencies did not agree as to the native's exact age, all were convinced that he was over 120 years old several years before his death.

The year 1950, like other census years, has produced its quota of stories about aged individuals. The oldest claim noted so far by the writer has been made by a man living in Brownsville, Texas. He is stated to have told the census taker that he was 128 years old, and this approximate age was supported by his relatives. This age has not, so far as I know, been confirmed by official records, although it may be correct. One of the most publicized cases is the Turk who made a trip to the United States several years ago and claimed to be well over 150.

It is rather obvious that it is not possible to state positively the extreme age to which human beings may live. It is certain, however, that it is well past the century mark. More exact figures are available regarding the *average* length of human life. In the United

States as of 1946, the average life of white men was slightly more than 65 years, while that of white women, the supposedly weaker sex, was over 70 years. When we compare these figures with an estimated average life of 33 years in England during the Middle Ages, it is apparent that the life expectancy of the human race has been lengthened enormously.

It must be realized, however, that this very satisfactory increase does not necessarily mean that the human body is any more capable of living longer today than it was many years ago. Average life figures are based upon the length of life of many thousands of individuals, including those that died in infancy. By far the greatest increase in human life expectancy has been made because of fewer deaths from infectious diseases and a reduction of infant mortality.

Do human beings live longer than any other animal? According to all available evidence, man's principal competitors seem to be members of the tortoise clan. If one surveys the vast array of literature dealing with the longevity of animals, he will find supporters for both sides of the argument.

Perhaps a more important question is, what can we learn from the animals that will help us solve the problems of aging? Physiological studies may cast a great deal of light on the whole subject. Today as never before, science is being brought to bear on this question, which is naturally of vital interest to everyone, and perhaps some of the answers to our own problems will be given by the animal Methuselahs.

STATUS of SEA LAMPREY

(From page 12)

tained a variety of fish used for display purposes at the Erie State Fish Hatchery. The lampreys have attached themselves to and feed on the following fish:

- Rock bass (*Ambloplites rupestris*)
- Largemouth bass (*Micropterus salmoides*)
- Brown bullhead (*Ameiurus nebulosus*)
- Black crappie (*Pomoxis nigromaculatus*)
- Carp (*Cyprinus carpio*)

Goldfish (*Carassius auratus*)

Several times, two of the lampreys would be attached to the same fish. Of note was the fact that two of the smaller lampreys were killed and eaten by carp.

Although the sea lamprey is present in the Pennsylvania waters of Lake Erie, it is not believed to be in such numbers as to cause concern to the commercial fishing industry or sport fishing.

Dean of Deputy Wardens Passes On

THE PENNSYLVANIA ANGLER pauses to pay this signal salute of tribute to its oldest Deputy Fish Warden, David L. Postlewait, who passed away August 5, 1952. Mr. Postlewait was an active conservationist in Jefferson County, making his abode in Reynoldsville. Constantly alerted to improve and advance the best interests of outdoorsmen, he will be missed by the hundreds and hundreds of persons who knew him personally. We are confident that Mr. Postlewait was one of the oldest conservation officers in the United States.

THE BAT

(From page 9)

entangling themselves in women's hair. Nothing could be more lacking in evidence of truth, for if such an entanglement should accidentally occur, the bat probably would emerge from the ordeal more emotionally upset than the woman.

According to legend, the modern bat is a symbol of hypocrisy: a war took place between the birds and beasts, during which a group of rats pretended to be on both sides and became thoroughly despised. When peace had been established, this group was shunned by the arbiters who finally decreed that since the rats were "two-faced" they should be neither birds nor beasts, but have the body of a beast and the wings of a bird. And, it was further ordered, they should stay out of sight during the hours of sunshine, coming out of hiding only after dusk. This is but a single instance of how folklore has made the bat a symbol of evil and mystery in almost every country around the world.

As the name of the order, *Chiroptera*, indicates, bats have "hand wings." The forelimbs do not terminate in hands, but in elongated finger bones to which the sensitive wing membranes are attached. The thumb, however, is usually free and serves as a clutching hook in climbing, or supporting the bat when, sloth-like, it hangs upside down.

Some interesting capsule facts about bats include these remarkable characteristics: they have a keen muscle

memory, or kinesthetic sense. This means that if you are holding a bat captive and it escapes, it will, upon being recaptured, fly at once to the aperture through which it first gained freedom. In captivity bats also soon learn to associate certain sounds with food. And it is now definitely known that they possess the homing instinct which leads them to fly many miles back to their roosts.

Odd, too, is the fact that bats must have a great amount of sleep. Even during the summer months they sleep up to twenty or more hours a day, stirring only long enough for an intermittent nocturnal aerial excursion of three to five hours. A few types fly very high and late at night, and consequently are seldom observed in flight.

A few kinds of bats have sucker-disks on their wings, enabling them to climb the smoothest surfaces. And females of a type known as the naked bat has a fleshy pouch on the underside of the body in which to carry her young.

The largest known bat has a wingspread of more than four feet. A fruit eating bat, it is commonly called the "flying-fox" because its head does resemble that of the common fox. And Ceylon has bats so brilliantly colored that they resemble butterflies. Unusual too are the two kinds of South American bats which catch and eat small fish by scooping them up with the tail membrane! Some bats are naturally white, and a few fantastic

forms have appendages to their noses, like leaves and blossoms!

The only mammal capable of true flight, the bat may give birth to as many as four young. But some species have only a single nipple, so it is natural for them to bear but a single baby. Female bats carry their young with them for the first few weeks. Sometimes the weight of the brood exceeds that of the mother, yet she flits tirelessly over broad expanses—and all the while the young may be draining her milk supply, relentlessly forcing her to rapidly rebuild her energy with huge quantities of insects. Most bats have voracious appetites, and the quantity of insects actually consumed by them each year would reach an incredible figure, not in pounds, but in tons!

About two thousand different species of bats have been authoritatively classified. Some of these, it is believed, may reach a ripe old age of eighteen to twenty-two years, but the life of the average bat probably is little more than five or six years.

Few animals are more thoroughly hexed by misunderstanding and hostility than the bat. It is even more friendless than the porcupine. But it deserves only kind treatment and careful study of its beneficial habits. Even if it annoys you by plucking up your fly while fishing you can be certain of one thing: the tiny creature is worthy of gentle release, for it was merely trying to do you a good turn by raiding the sky for insects that sometimes make fishing jaunts a pretty miserable ordeal!

GLASS RODS

(From page 21)

Glass rods are strong, enormously strong when compared to other material generally accepted as good rod making material. A well made rod is practically indestructible **UNDER ACTUAL FISHING CONDITIONS**. It must be remembered, however, that any material suitable for rod construction will, if misused, break, else it could not have the other qualities which make a good rod. My good friend "Bob" Sterner of Red Lion, Pa. landed a thirty pound pike with his $\frac{3}{8}$ ounce glass tournament rod using a $7\frac{1}{2}$ pound test line. Granted that "Bob" is a superior fisherman, the fact

remains that his rod performed as he wanted it to perform and, as he is perfectly willing to concede, withstood unusual punishment for so light a rod. Just because they are strong is no invitation to foolishly bend them into pretzel shapes nor to sit upon them, step upon them, or to pinch them in automobile doors. Treat them as the fine tools they are and they will not let you down.

Somehow a great deal of misinformation has become current relative to the durability of glass rods. It should be apparent that, due to their very newness, they cannot have been proved

on the point of longevity. Whether or not they will last a lifetime, as have some good bamboos, only time will tell. The most I can say from experience on that score is that my trio of glass rods has been used hard for nearly six years and has yet to show a sign of wear or, indeed, any form of deterioration. They need no care except at the windings and, in one case not even there, since the guides are mounted with the same material as is used in the body of the rod. As far as is now known, neither the glass fibers nor the plastic resins used in these rods are subject to fatigue. Therefore, there seems to be no reason why they should not last indefinitely.

Glass is a physically constant ma-

terial not subject to variables as are wood, bamboo (a grass), and, to some extent, steel. It is adaptable to assembly line methods of manufacture and can be closely controlled throughout all phases of production. It is possible thus to exactly duplicate any desired action to the extent that there is practically no variation in weight, flexibility, point of balance, or strength. As a result, good rods can be made at a rather moderate cost, and, should you break your favorite rod, you can get another EXACTLY like it.

In appearance glass rods vary widely. Some are made to resemble bamboo, others are colored to the fancy of the maker, and still others resemble a well known make of hollow steel rod. I have never seen one of good quality by a reputable manufacturer which did not present a handsome appearance and, best of all, retain that beauty indefinitely without effort on the owner's part.

Glass is positively not influenced by external factors. These rods do not take a set as does bamboo. I have seen hundreds of them and have yet to find one that had taken a set even after all sorts of hard usage. They are not affected by heat or cold in action or

in strength. Moisture cannot damage them so they can be stored in any place which would not affect the metal parts. They need no varnish. They are hard without being brittle, do not easily scratch or mar. However, they can be cut thus damaging the outer fibers.

Glass rods are available in many types of construction. Basically they are either tubular or solid, though one company combines the two. Variations in construction are due mainly to differences in fiber content, fiber arrangement, type of resin, and design. The tubular rods are a bit lighter than the solid ones and appear to be amply strong. Many of the early glass rods were too whippy, too lacking in backbone. Those produced now by reputable companies are vastly improved. So much so, in fact, it is difficult to tell the difference between glass and good bamboo by feel alone. I would caution the person buying a long rod to make sure it had sufficient butt stiffness, otherwise it might not provide satisfactory hooking quality.

These rods compare favorably in price with those of any other material. In fact, they have tended to lower

competitive prices. In the middle price range, say from ten to eighteen dollars, it is possible to buy a first class glass rod, one which will compare favorably in all respects with really good rods of either steel or bamboo. Still, as with other materials, it pays in the long run to buy the best. The chief difference between the better moderate priced rods and the very best ones is mainly in better guides, better handle, nicer appointments, and more practical carrying case. If you don't mind a little work and wish to save money, and at the same time have a first class rod, buy a kit and make up your own rod. A little time and effort will save fifty per cent on the cost of the finished product.

I have used glass rods for enough years to feel confident of their performance under the most rugged conditions. The best ones are, in every sense of the word, superior tools to be held on a par with the best rods of other materials. They are the only rods which can closely duplicate the action and feel of good bamboo. In short, I like them above all others when I can get one with an action which suits my rather exacting taste.

SEA GULL THAT CAME BACK

(From page 11)

gull has been a fairly common wintering bird on Lake Erie and, particularly, at Erie Bay. Some years ago, immature and adult herring gulls that did not breed, began spending their summers there. In July 1950, someone found a downy, young one at Presque Isle State Park for the first record of a herring gull nesting in western Pennsylvania, and possibly in the entire state.

In their nest building, scarcely two of these birds make their nests alike. Usually they nest on the ground, although when persecuted, they may build in trees. Whatever materials they use, they gather from close by the nest site, which is generally on an island in either salt or fresh water. Sometimes they use sticks, or perhaps seaweeds, grass, or moss. Both male and female build the nest together, which may start with only a depression in the ground.

The female ordinarily lays three eggs which hatch in about 26 days.

The chicks are covered with black-spotted, pale yellow, or gray, down, which makes the little birds difficult to

see against rocks or sand. The young ones, which the adults feed by casting up pre-digested food in front of them, grow rapidly. In five to six weeks they are as large as their parents and able to fly.

The life span of a herring gull is about 50 years, but they seldom, if

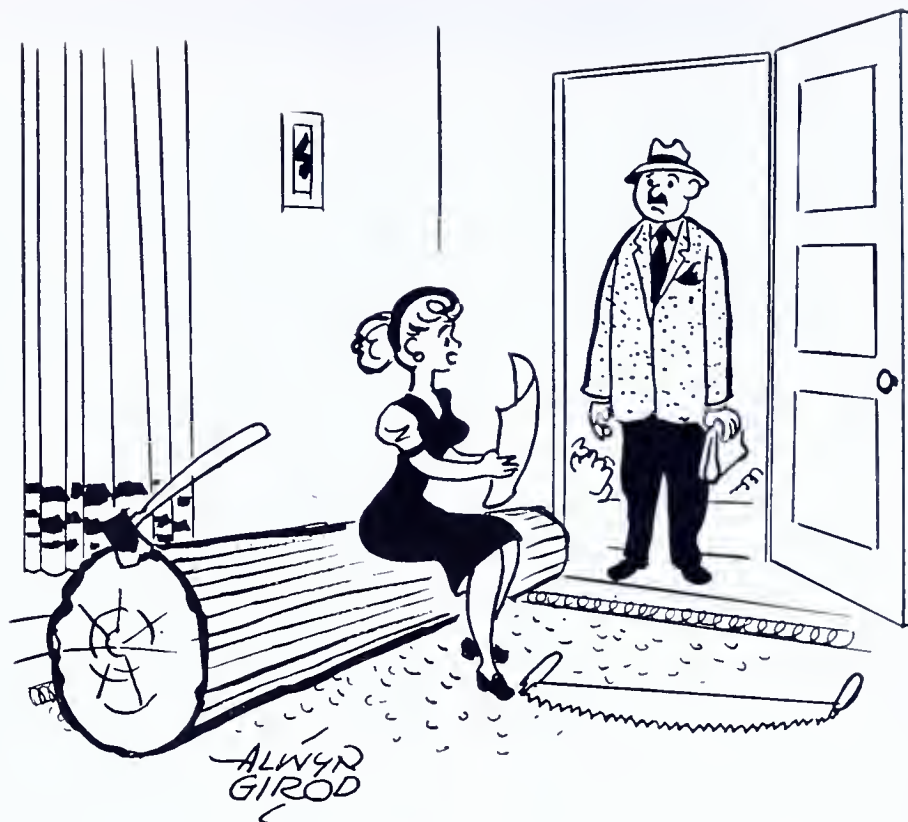


"I don't know who he is . . . said something about looking for a lost ball!"

ever, live that long in the wild. "Gull Dick" was a herring gull that the crew of a lightship off Rhode Island fed every winter for 24 years. Each spring he left for the northern breeding grounds, but returned to the lightship in the fall. A herring gull and his mate lived in captivity in the South for 49 and 45 years respectively, and reared young ones in their owner's backyard.

If you watch the tough, hardy, herring gulls, you will soon be impressed with their smartness and ability to get along in the coldest weather. I have seen one at low tide pick up a large clam and fly 25 to 30 feet high above a flat rock, and then drop the shell to break it. If it didn't shatter on the rock from the first fall, the bird would pick it up and fly higher each time until it did. Then it would swoop down and eat the clam.

One day I watched a gull drop four mussels to a broad, flat rock, but he didn't get to eat one of them. On the rock sat a crow, and each time that a mussel dropped in front of him and broke, he walked calmly to it and ate its contents before the gull could come down and claim it.



"Dear, . . . your BUILD-IT-YOURSELF boat kit came today!"

Herring gulls are alert and resourceful, and they certainly add beauty and interest to Pennsylvania's rivers

and lakes. But for sheer, bird cleverness, a gull can learn something from a crow.

Famous Streamer Flies

(From page 20)

to me by Mr. Steenrod and Mr. Christian were too precious to use. They are in my collection of several hundred original patterns forming the authoritative basis for more than 250 authentic and most popular streamer flies described in detail in my book. But I dressed a few duplicates and, fired by the glowing reports of the success of the Bumblepuppy, I tried them in many different waters. The Bumblepuppy is an uncommonly good fly for almost any kind of large gamefish, especially when streams are high or discolored. It is extremely good in salt water, too. Here is Roy Steenrod's favorite dressing of it, as copied from my book and as taken from the fly he gave to me:

Head: Black

Tail: A dozen rather long fibres from a red hackle feather

Body: White chenille

Throat: About two turns of a red and a white neck hackle, to make a very long but not heavily dressed collar

Wing: A very small bunch of white bucktail, extending slightly beyond the tail of the fly

Shoulders: Four sections of a brown turkey tail feather; two for each shoulder. Each two are matched with the concave sides together to give the appearance of a single feather. They are tied on rather high, like the wings of a wet fly, but the shoulders splay out to make a "V" when viewed from the top. The shoulders are nearly as long as the bucktail.

Mr. Christian's favorite version is the same except that the shoulders (really the upper part of the wing) are not splayed. If you want to dress it as Theodore Gordon seemed to like it best, add a ribbing of a single strand of red wool yarn—or silver or gold tinsel. The red yarn ribbing seems to have been most popular, and makes the body resemble a stick of peppermint candy. Any long shanked streamer fly hook will do.

In all the hundreds of patterns I

collected for my book, I never found anything quite like the Bumblepuppy, although it faintly resembles several famous streamer flies in use today. Since Theodore Gordon invented it, the fly seems to have been forgotten. This is unfortunate because it not only was the first tangible streamer fly ever used, but it also is a first class killer for big fish of nearly all species.

Maybe it is time modern anglers tied some more Bumblepuppies and put them to work on our favorite streams and lakes again, in the interests of successful fishing and in honor of the American Isaak Walton—the great Theodore Gordon!

The spinning fraternity will be interested in articles coming up in the ANGLER by Joe Bates, America's top spinning expert:

"How to Select Spinning Lures"

"Matched Tackle—All-Important Aid to Spinning"

"Secrets of Brake Control in Spinning"

Davy and the Stupenjus Sturgeon

(From page 19)

bank, slanting down to the stream. It was a huge hollow log.

Davy Crockett had another notion as he stood there with aching joints and relief to be alive. He went to work on it with broadax, knife, rope, and gar-teeth gloves until night stopped him and he was up and at it again in dawn light. By the time Big Dulcie came around again Davy was primed and ready for her.

At the small end of the cedar the hollow was only large enough for Davy to poke his head out. But that was enough for Big Dulcie to see. She came rearing up as close to the bank as she could venture. Davy braced himself for another two-way blow.

It was do or die for Davy Crockett, as never before. He had himself roped fast inside the cedar. The wind came down the hollow like a tornado,

but Davy himself was not budged from his anchorage. A lull, and then the real blow struck. The cedar shuddered, its ring of timber around the hollow shivered and cracked—and then it sailed. Up it was buoyed and pulled in the most hurricanellious of all the gasps ever drawn by the queen sturgeon of the old Columbia. Davy got his bearings. He could see ahead. He saw the maw of Big Dulcie squarely before him—then the cedar stopped with an almighty shock—and all went black around Davy.

But he kept his senses. He felt the ropes yank into his hide with the shock. Then he cut himself loose with Big Butcher and commenced to climb, clawing up the hollow with the gar-teeth gloves. When he came up into daylight the sturgeon was floundering, rolling in the river, the spreading

butt of the hollow cedar a float that held the head of the great fish at the surface. It had the spout mouth stoppered tight. Inside the mouth the snags of the limbs were caught like hooks.

Davy Crockett climbed out and aloft on a slab of the butt. So he rode in triumph down the river. The wolf trees howled. The Indians whooped and hollered. They came out in their canoes for Davy Crockett when Big Dulcie piled up on the bar and lay there, still stoppered by the cedar tree, awash and still.

And at last navigation was free and clear on the Columbia River. . .

Next day I told Aunt Min Cotter the history I'd heard from Uncle Ben.

"Might be," she said. "Wonders never cease. Now I'll tell you the biggest one of all. Ben Cotter didn't get that silver and gold for catching a fish. For once in his life he made a killing at draw poker."

ACE OF BLUFFERS

(From page 13)

heavy-bodied, grayish-black in color with no hint of pattern.

The stranger stopped thirty or forty feet back. "You're takin' an awful chance," he warned.

We walked in to within a yard of the snake and I scuffed a little sand at it with a foot. The transformation into a creature of fighting rage and deadly appearance was instantaneous. The adder's head lifted and spread into a flat vicious hood, much like a cobra's, that extended five or six inches down its neck. A faint pattern of reddish brown stood out suddenly on the scales of the distended, flattened neck. The snake swelled itself to almost twice its normal girth with a deep inhalation of breath. Then came the explosive hiss I was looking for, and the short feinting strike that was little more than a convulsive jerk of the thick body.

I looked over my shoulder at the stranger. His mouth was hanging open and his eyes were fairly popping from their sockets.

Dave scuffed a second handful of sand at the snake and again it met the

threat with a loud hiss and a false strike.

"No wonder he's got a bad reputation," Dave chuckled. "He certainly earns it. Folks call him the puff adder and the sand viper and the spread-head adder. But all he really is is just a common blow snake."

"You mean to tell me that thing ain't poisonous?" the stranger demanded. He had inched up behind us to watch the show and now he stood only ten or twelve feet away.

"About as poisonous as a garden toad," Dave told him. "No venom, and he'd hardly break the skin if he bit you, which he has no mind to do. Yet wherever he's found around the country he scares folks half to death."

"Well, I'll be!" the man said. "You sure?"

"Sure I'm sure. I don't monkey with any snake unless I'm sure. Watch this fellow play his last card."

Dave broke off a small switch and struck the adder with it. Instantly the hood dropped down, the snake opened its mouth to full width and lay rigid on the sand as if badly hurt. Dave

switched it again and the adder rolled over on its back, twisted and writhed for a few seconds, relaxed and lay motionless, to all appearances a dead snake.

The stranger stared for a minute, hardly believing his eyes. "That beats anything I ever saw outdoors," he declared at last.

"He's about the biggest bluffer on earth," I agreed, "and the only snake in these parts that knows enough to play possum when his bluff is called. His correct name is a hog-nose, in case you're interested."

The man shook his head as if confused. Then he walked down to the creek bank and retrieved his rod. "How long will he stay dead?" he demanded.

"As long as we hang around and watch him."

He shivered a little. "Well, he can recover any time as far as I'm concerned," he said flatly. "You proved to me that I've been wrong all my life about puff adders. I've always thought they were worse than copperheads or timber rattlesnakes. Seems that's not so. But I'm still going to do the rest of my fishing a couple of bends downstream!"

What's New in Fishing Books

By HUGH JOHNSON

THERE has just been published a novel called *The Old Man and the Sea* by Ernest Hemingway (Charles Scribners Sons, New York, \$3.00), which, in the opinion of this reviewer, will enter our literature as a classic of all time. That alone would not validate a review of the book in a fishing magazine, but it happens that *The Old Man and the Sea*, again—in the opinion of this reviewer, is also the finest fishing story in the English language. It is probable that many readers of this column read the Hemingway story when it appeared, before book publication, in the September 1st issue of *Life*. If you haven't, go out and buy the book. Even if you have, you may want to buy the book anyway as something that you will turn to again and again during the years. It's that kind of a narrative.

The plot is starkly simple. An old Cuban fisherman goes out in his boat alone and hooks a giant, record-breaking marlin. The gigantic battle lasts for days and nights before the marlin is finally brought alongside, speared and fastened to the side of the boat (the fish is far too large to be boated). On his long trip back to the shore, the old man tries in vain to keep the sharks away from his prize, but by the time he reaches the landing the giant fish is nothing but head and skeleton. That's the plot. But it's the spirit of the story, the nobility of the old man in his titanic struggle, his love for the unfathomable depths of the sea and her grandeur, the magnificence of the great marlin's battle, the final glory even in disaster—that make this short novel such an indescribably powerful narrative. Every fisherman who has ever felt himself part of the water he fishes—be it stream, river, lake or ocean—who has thrilled to the sport of hooking and catching a fine fish and then felt such affectionate respect for his fish that he slipped him back into his element, will take *The Old Man and the Sea* to his heart. And he won't be able to recall any reading experience like it unless it be some parts of an older classic, *Moby Dick*, by a great writer of another day, Herman Melville.

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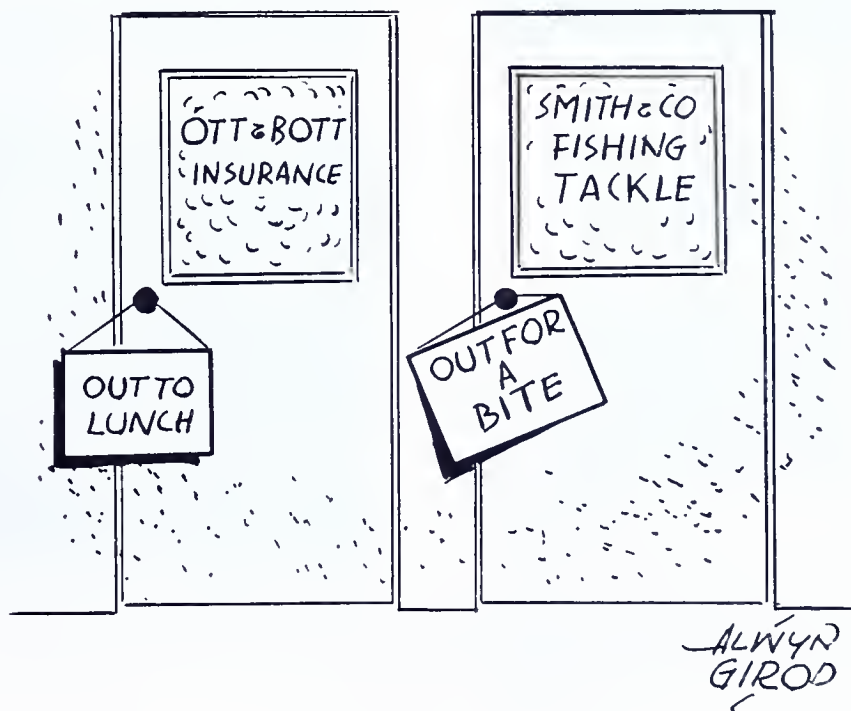
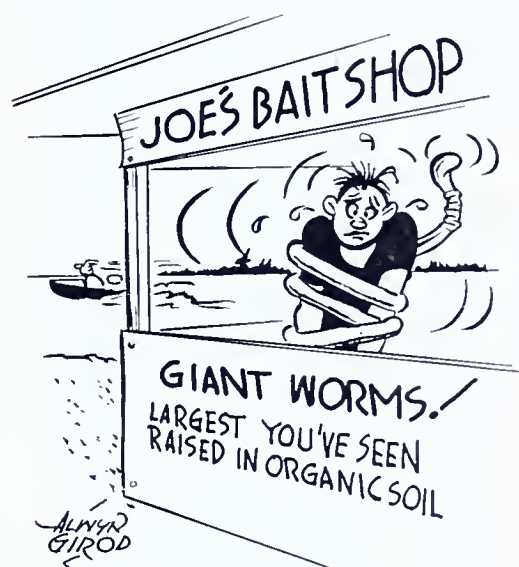
I suppose some kind of a need is filled by *Natural Fresh Water Fishing Baits* by Vlad Evanoff (A. S. Barnes

and Co., New York, \$1.50). For fishing for all kinds of fish, other than trout, I probably use bait more than artificial lures—and baits in great and occasionally ugly variety. But there is something about seeing the whole subject laid out in a book and in such uncompromising completeness as is the case with this book, that seems to me to be a little on the repulsive side. Cockroaches may be good bait for all I know, but who wants to read about how to raise them? There is a section on how to put salmon eggs on a hook—in singles, in a chain, in clusters on a gang-hook rig, but there is something about fishing with salmon eggs that, in any form, reminds me of the character I ran across once who was actually fishing for trout with a trout eye on his hook. Yes, there is much useful material in this book—how to put worms on a hook (in one's and two's and three's and by the dozen), how to put minnows on a hook, how to fish with live frogs and toads, blood-suckers, slugs and small snakes, how to manufacture dough-balls and how to make stink-baits. I don't know, if you want to know about these things, I guess you can't go wrong on a buck-and-a-half for this book, but when I finished reading it I dug out my fly-tying kit and tied up a Fan-Wing Royal Coachman—and felt better.

* * * *

Fresh and Salt Water Spinning by

Eugene Burns and Clyde Childress (A. S. Barnes and Co., New York, \$1.50) is an excellent primer on spinning. For the angler who doesn't know anything about this sport and wants to learn the fundamentals of tackle, technique and lures, and wants sound guidance on what kind of tackle to buy without taking out a second mortgage on the hut, this is the perfect book. It's concise, down-to-earth, and straight facts from beginning to end. The casting instructions alone, with the superb photographs to illustrate, are worth the modest price of this book. After reading *Fresh and Salt Water Spinning* and after getting your start in spinning, you will probably want to get into Joe Bates' comprehensive work, *Spinning for American Game Fish*, but you'll make no mistake in starting out with the Burns-Childress book.



The Editor's Angle

BIG TROUT caught July 31, 1952 at Enola Sportsmen's Ass'n Fishing Lake for children in Cumberland county by Dick Kling, 6, of West Fairview. The fish was 19¼ inches long and weighed 3¾ pounds. The lunker liked a bit of hamburger Dick was tossing around.



The ANGLER has turned over these several pages to our readers. The editor invites letters, comments and discussions on any angling subject. Send along any ideas on gadgets or tackle, observations on odd happenings. If you desire the ANGLER to run an article on any outdoor subject make your requests known. We shall do our best to comply with your wishes. The editor reserves the right to edit all inquiries and letters to conform with format of the magazine.



LAKE TROUT grow big in Pennsylvania. Mrs. Arthur Cramer of Carbondale landed this 38-inch, 24 pounder believed to be one of the largest fish ever landed in the Crystal Lake region, Lackawanna county last August 7. Mrs. Cramer said she didn't think it was anything unusual until she tried to reel it in when the trouble started. The trout never broke water, took 25 minutes to land, had a girth of 26 inches and was taken on a spoon made by Mr. Cramer. Photo by Schella.

Dear Sir:

I would like to report a brown trout I caught that weighed 9½ pounds, was 27½ inches long with a girth of 17½ inches near Waynesboro.

Dale Jones

Waynesboro, Pa.

Dear Sir:

Just a few lines to congratulate you on your August issue of THE ANGLER. I think it is one of the best you ever published, especially "Bass-Bug Fishing" and "Carp Capers." They just seemed to be in order at the right time.

Many thanks for a fine publication and more success to you.

Harold Robinson

Palmyra, Pa.

Dear Sir:

The July issue is a dandy and full of very interesting articles. I enjoyed it. The cover picture is marvelous.

I. Goldberg

Brooklyn, N. Y.



Walter A. Swiatek of Pittsburgh sends in this photo of his friend, Bernard Gorczyca, also of Pittsburgh, with 18-inch brown trout caught in the Big Scrubgrass Creek, Kennerdell, Pa.

Dear Editor:

Here is a snapshot of large brown trout I took this year—length 24 inches, weight 5 pounds 12½ ounces. It was caught in Thompson Run near Hydetown on May 1 on a nitecrawler. I enjoy THE PENNSYLVANIA ANGLER very much.

Charles Younginger

Meadville, Pa.





Dear Editor:

A friend of ours, John Jones of Devitts' Camp, who subscribes to your magazine asked us to send an account and pix of the little boy who caught this brown trout. The child, just 4, caught the 13-inch brown trout while fishing for chubs in Spring Creek, Lycoming County.

The little boy is Johnny Voneida who is very much interested in fishing and has gone with his Daddy on many trips. He has his own fishing outfit and enjoys telling everyone he sees about his big trout. I am sending a snap shot of Johnny and his catch.

Mrs. John Voneida

Allenwood, Pa.



BIG BASS taken by Albert M. Boros of Jessup, Pa. in Alford Pond, Susquehanna county in July weighed 7¼ pounds, 22 inches in length. Young fellow is Mr. Boros' nephew.

Dear Editor:

Recently I made a catch that perhaps will be of some interest to subscribers of **THE ANGLER**. However, from the fly-fishing puritans of the angling fraternity, this will evoke little or no comment as the fish I write of is the lowly carp.

Fishing in the North branch of the Susquehanna for smallmouths and wall-eyes with nitecrawlers to entice them I had little luck. About 100 yards from where I was anchored I spotted several large carp rolling on the surface. Fool-hardy by nature, I decided to have a try at them with spinning gear I was using at the time. Baiting up and casting in the general direction I waited about 10 minutes when a big carp took the bait. On his first run downstream he took nearly all my line, had to pull anchor with free hand and drift after him. From here on out I simply hung on and he made several savage runs each one shorter than the other. The encounter lasted about 2½ hours and the fish, when landed, measured 36¼ inches, tipped the scales at 29 pounds.

The line I was using was nylon monofilament, 4-pound test which goes to prove something but I can't say what! Incidentally I believe you'll have a tough time improving on the present edition of **THE ANGLER** as I believe it to be the ultimate in interesting and enlightening angling publications!

Ralph Oberdorf

Riverside, Pa.



Dear Sir:

Here's a muskie 43 inches long that weighed 22 pounds I caught while fishing Conneaut Lake last month on a spinning rod and reel with 6-pound test line using flatfish, T4.

I was wondering what the record is on muskies for this test line in Pennsylvania?

William G. Toth

Pittsburgh, Pa.

Since we do not receive records of all fish taken in Pennsylvania waters we are at loss to say whether Mr. Toth's fish is a record. We do receive photos and records from time to time but anglers invariably fail to mention line test.

* * *



FISHING DERBY PRIZE WINNERS at third annual fishing derby held recently at Shady Brook Park, Meadville. Left to right are: Patrick Rebrassier, Bobbie Pulchosky, Richard Peelman, Kenneth Smith, Michael Caputo, Verna Morse and David Myers. More than 300 boys and girls participated.



Dear Editor:

Have enjoyed **THE PENNSYLVANIA ANGLER** for a number of years and will continue to do so. I am enclosing picture of a muskie my husband caught at Wildwood Resort on the Allegheny river, 19 miles south of Warren. It weighed 14 pounds and was 38 inches long, taken on August 6 last.

Mrs. Leo Frank

Laurel Gardens, Pa.

Don't Burn

Some folks think that come fall certain parts of the farm or lot should be "burned over." All kinds of excuses are offered for this practice, but they just don't hold. The commonest is that fire destroys weed seeds and bad insects. They should say that fire destroys seeds and insects, for no fire distinguishes between good and bad seeds or between beneficial and harmful insects. Fire brings on depletion of valuable minerals in soil; it destroys wildlife food and cover; it lays the land wide open to erosion during the harsh winter months. And in hundreds of cases, the fire has gotten out of control and started a conflagration not planned upon by the fire starter.

Bird Cafeteria

Begin making plans for that bird feeding station for next winter. In Pennsylvania a number of birds stay with us. These include the chickadees, nuthatches, the hairy and downy woodpeckers, cardinals, tufted titmice, juncos, etc. If you get your feeding tray out early enough, you may induce a few species to remain with you that would normally migrate farther south. Our non-migratory group of birds are an especially valuable group because they are ever on the alert to pick up insects in their dormant stages: the prospective parents of descendants that will never be born.

Develop Hunting and Fishing Manners

There is a small group of hunters and anglers who are constantly giving the rest of us a bad name. They fail to close gates. They tear down fences. They shoot at or disturb the farmer's livestock or poultry. They do a number of thoughtless acts that would try the patience of Job. If any one should practice the Golden Rule, it should be the hunter or fisherman on some-one-else's property.

Fulica americana

Last fall I had a letter from a reader telling about a "duck" his father had shot that didn't appear in his Guide to the ducks of America.

He wondered if his father had shot a new, undescribed species. He said the bird was slate colored with darker head and neck, and that its feet were only "partly webbed." He included a Brownie photo of the bird, and the first glance told us what his "duck" was.

It wasn't a duck, but a coot, a member of the rail family that is commonly called a mudhen. It is closely related to the Virginia rail, king rail, and the sora. The rails are shy marsh birds with the exception of the coot which often is found in the company of wild ducks where they help themselves to underwater vegetation brought to the surface by the ducks.

Coots range over much of eastern United States and Canada. They nest in marshy areas where a pair will have 8 to 10 dark-flecked, buff-colored eggs.

You can always tell a coot in the water because of its way of "walking" along. Its bill is white and pointed . . . in no way ducklike. There is a reddish spot on the forehead. The sexes are similarly colored.

Coots are good eating if properly prepared. The bird should be skinned and all fat removed. (The fat is strong flavored and will impart that odor to the flesh unless removed). Parboil for 30 or 40 minutes in salt or soda water, and then fry.

Chuck, the Warden, says . . .

More and more authoritative fingers are being pointed in the direction of the discarded bottle as the culprit in many an unexplained wild fire. The bottle, empty or full, may act as a reading glass in the sun and start a blaze in dry grass or leaves. The problem is a difficult one for many picnickers leave empty bottles behind and glass distintegrates slowly. Bottles that are buried often work to the surface. Breaking the bottles is dangerous and may just result in more lenses. Better bring your empties home.

Buzz . . .

Man's best friends . . . though man may not admit it and the "friends" are totally unaware of it . . . are the

honey-gathering bees. If you ask the average person what word he first thinks of when he hears the word, "bee", he'll answer "sting". But bees have a greater ability as far as we are concerned than protecting themselves. Scientists tell us that we would have few fruits like cherries, apples, peaches, plums, and their relatives as well as few oranges and other citrus fruits if there were no bees. As they endlessly harvest nectar which they change to honey, they carry pollen from flower to flower, thus assuring the first step toward the future crop. See how well you can score on these *apicultural* questions:

1. The greatest importance of bees is (a) honey, (b) pollination of flowers, (c) beeswax.
2. The most popular bees imported to America were from (a) Italy, (b) India, (c) Syria.
3. A pound of bees would contain (a) 500, (b) 2,500, (c) 5,000 individuals.
4. The average worker bee lives (a) 6 months, (b) 2 years, (c) 5 years.
5. A queen may live as long as (a) 1 year, (b) 4 years, (c) 10 years.
6. The sting of the worker bee is attached to the (a) head, (b) thorax, (c) abdomen.
7. The honey bee was on the Royal Crest of (a) Napoleon, (b) Caesar, (c) Henry VIII.
8. The cells in a honey comb are (a) 4-sided, (b) 5-sided, (c) 6-sided.
9. A cup of honey weighs (a) 8 ounces, (b) 12 ounces, (c) 16 ounces.
10. Orange honey is (a) amber in color, (b) orange, (c) white.
11. The darkest honey is gathered from the flowers of (a) buckwheat, (b) fireweed, (c) tarweed.
12. The state that produces the most honey is (a) Pennsylvania, (b) California, (c) Wisconsin.

Answers: 1-B, 2-A, 3-C, 4-A, 5-B, 6-C, 7-A, 8-C, 9-B, 10-C, 11-A, 12-B.

— *Tops* —
in
*Reading
Pleasure!*



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VEMBER *PENNSYLVANIA ANGLER* 1952

MOUFLAGE ARTISTS · MOSS ANIMALS · WOODLAND WONDERS
LE EMPRESS · RELIGION IN ROUGH · SPINNING LURES · PLUGS



November Crossroads

Torn between selection of rod and gun, Pennsylvania sportsmen face big decision. Days too warm for gun and dog afield are just right for a crack at big bass and walleyes before season ends on these fish, November 30. Compromise might include an early morning hunt followed by a jaunt to stream or river for fishing expedition. Chances are, after full day of activity afield and astream, sleeping pills will be highly unnecessary!

**COMMONWEALTH OF
PENNSYLVANIA**

HON. JOHN S. FINE
GOVERNOR

*

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PENNSYLVANIA ANGLER

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THE COVER . . . NOVEMBER is WALLEYE time in Pennsylvania waters. Pictured is Otis Robbins, Jr., biologist, Pennsylvania Fish Commission holding a 24-inch walleye taken from one of the waters of the Commonwealth.

—Photo by George H. Gordon, Official Photographer,
Pennsylvania Fish Commission.

BACK COVER . . . A DANDY old "Bleary Eye" taken from foaming waters on a mild November day.

—Photo by Ewing Galloway.

George W. Forrest, Editor

1339 East Philadelphia Street, York, Pa.

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STAR CAMOUFLAGE ARTIST is the leaf fish (*Monacirrhus polyacanthus*) which has uncanny resemblance to a dead brown leaf. Hanging head down in the water its characteristic pose, fish can easily pose as submerged leaf.



LIKE strange aquatic characters in a fairybook tale of olden times, numberless fish throughout the world have so effectively perfected thorough adaptation in the art of protective disguise that they form one vast underwater exhibition of the bizarre, the uncanny, the fantastic, and the fabulous in Nature's varied extravaganza.

Pennsylvania anglers with a flair for travel to romantic waters beckoning in far-off places doubtless have seen some of the "impossible" fish dealt with in the following paragraphs. The less spec-

Finny Specialists in --- *Camouflage*

tacular species such as the flounder, pipefish, gar pike, bowfin and others may have more frequently known the curious observance of Keystone fishermen. For these may be found in varying numbers in certain native waters of the continent.

Perhaps the star pace-setter in the underwater world of natural camouflage is the leaf-fish—and how fitting the name! Indigenous solely to the fresh waters of South America, the unique fish was a complete stranger to this country until a few specimens were brought to the New York Aquarium in 1933.

The leaf-fish possesses uncanny resemblance to a dead brown leaf. Parts

By **WILBERT NATHAN SAVAGE**

of the fins are transparent, and a slender tab of flesh on the chin gives the realistic effect of the "leaf's" stem. Hanging head down in the water—its characteristic pose—the fish lies at an angle for all the world like a dead, submerged leaf. Other small fish are deceived as they trustfully swim right

into the sheltering broadness of the nearest "leaf." Swish! The "leaf" moves with lightning swiftness and one end opens up to swallow a mouthful of surprised tiny fish. But the remaining ones always come back for a repeat performance. They never learn. How can they, when keen-eyed humans

PENNSYLVANIA—ANGLER

usually refuse to believe that aquarium specimens are genuine live fish!

There is a fish called the father-lasher on the rocky coasts of Great Britain which many authorities say is a perfect example of military camouflage. Banded with irregular light-gray marks, the outline effect is destroyed

by breaking up the continuity of form. In the water the fish looks exactly like an odd-shaped rock stained in anomalous mottle by lichen coloring. Guns, lorries, buildings, and even helmets are painted to bring out exactly the same effect.

The fantastic shapes assumed by

some of the finny masqueraders frequently adds confusing protective design to the magic of protective coloration. A perfect example is the Sargassum fish. Its whole body is irregularly decorated with tabs and sprigs of flesh, and its fins also serve to help break up the outline of the body and make it blend into the Sargassum weed that is its home. Add to the weird form the ability to alter its dappled color-pattern in order to match the general color tone of the particular weed-clump in which it finds itself, and you have camouflage par excellence.

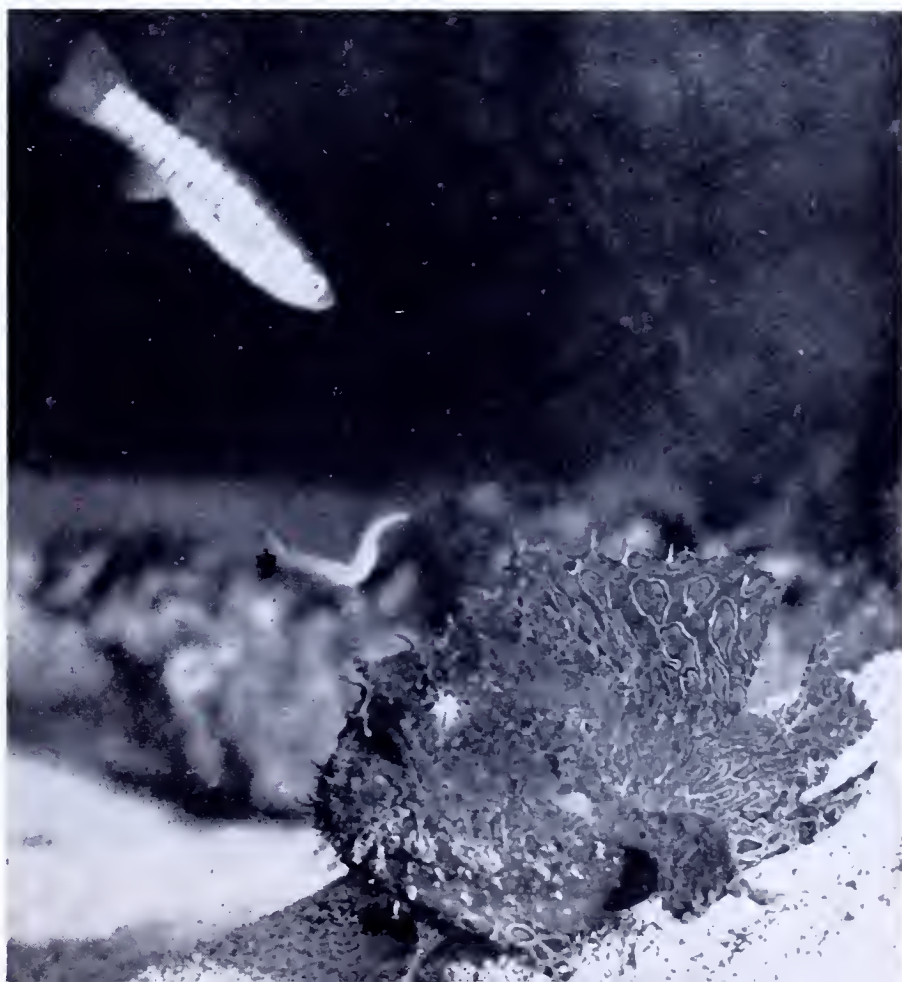
If you think the picture of the Sargassum fish is a puzzle, you should attempt to spot one in a tangle of its favorite vegetation! Like most of the bizarre members of the fish world, the Sargassum fish is not—need we point out!—fit for the pan.

A deceptive Lilliputian among fish is the spadefish on the West coast of Florida. It is almost a dead-ringer double for the infertile seed pods of mangrove trees which grow along much of the shoreline. These pods fall into the water and mingle with the small fish. How perfect is the resemblance between the pod and the fish? Well, there is a true account of an ichthyologist who spent five years in his Florida laboratory before he dis-



THE BIZARRE PUZZLE is the Sargassum fish. It isn't worth a fry in the frying pan but try to spot it in a tangle of vegetation.

WITHOUT A FRIEND, the Angler fish is wicked and treacherous. Expert exponent of camouflage, he lurks on ocean floor, often resembling a brown stone partially covered with sponge growths. Gets his name from bait he carries in form of a fleshy worm-like tab raised or lowered like a whippy antennae. The Angler often reaches a length of four feet, weighing seventy pounds.



covered the spadefish among the seed pods within a stone's throw of his doorway! There is even a black water snail in the same area which looks very much like the small spadefish, so actually the creature avoids detection merely by putting on the appearance of other conspicuous objects in their habitat. Some experts believe the complete process involved in acquiring such structural adaptation has occurred only after the passing of no less than 50,000,000 years!

THE leafy sea-dragon is nothing more or less in appearance than a fisherman's nightmare, and a violent one! A relative of the seahorses and the pipefishes, it is even more extravagantly decorated with plant-like appendages than the Sargassum fish. It is quite rare, and only a few specimens have been taken off southern Australia. The fish, living at moderate depths in growths of sea weed, is decked out with

more than a dozen appendages, each with a full complement of "leaves"—enough foliage to be a complete plant in itself!

A good example of Nature's protective whimsical moods in creation is the pipefish. Found along both our coasts, the long bony creature resembles the upright blades of eel grass in which it lives. Attaching themselves by means of prehensile tails to the base of waving eel grass stalks, they sway in exact timing with surrounding plant life, and match the colors of vegetation remarkably with varying tones of gray, brown, and green. The pipefish may normally swim in a horizontal position, but it has been observed that when hostile life is near, the creature will flip into an upright stance and, tape-like, begin weaving to and fro in tempo duplicating the motion of the nearest vegetation.

Protective coloration frequently is switched into rewarding disguise when the hunter, rather than the hunted, is

inescapably entitled to Nature-planned benefits. This is partly true in the case of the leaf-fish, although the plant-mimicing design and coloration also has advantages of protection from larger fish which prey on moving forms of animal life in sizes many times larger than that of the largest leaf-fish. There are some fishes, however, which are camouflaged for ambush purposes only. One of the best examples is a revolting fellow known as the Angler.

IT HAS been said of the Angler fish that he's without a friend in the world. Wicked and treacherous, the Angler usually lurks on the ocean floor where the depth is great, ready to snatch up any passer-by of suitable size. Found in waters from the Gulf of St. Lawrence to Cape Hatteras, and in many other parts of the world, the Angler often resembles a brown stone partly covered by sponge growths. But the

FIND THIS FISH if you can! You've got to have keen eyesight to spot this color-change artist, a flounder in a granite pan. Its changeable skin pigments run yellow, brown, black and white, in addition to this trick, can quickly change pattern of markings to match background.

U. S. Fish and Wildlife Service photo





GAR PIKE has little trouble making itself look inconspicuous, resembles a log as it floats or rests submerged in the water.

BOWFIN MALE, during breeding season, casts off bronze color, takes on hues that match shadowy tints of surroundings, even duplicating color of leaves and shallow-water vegetation.



U. S. Fish and Wildlife drawings

most uncanny part of his make-up is the "bait" he carries, and which has earned for him the name "Angler" because actually he does use his lure to attract unsuspecting prey!

The Angler's bait is a fleshy worm-like tab which may be raised or lowered by the fish's own strange system of "hydraulic" power. The bait is on a whip-like antennae. If fishing is poor in one spot the Angler will haul down his bait, move elsewhere, hoist his lure again and hope for an abundant catch. When a fish dives for the bait, the ugly master of deception quickly whisks it aside and snaps up his victim, momentum and all. The bait is rarely if ever damaged by the doomed prey.

Reaching a length of four feet and a weight of seventy pounds, Mr. Angler has been known to swallow fish almost equal to his own bulk. Voracity is the Angler's middle name, and in several instances he has been known to swallow the wooden buoys attached to lobster pots! The stomach of one specimen held seven ducks, so waterfowl is definitely on the Angler's menu when deep-sea creatures aren't in a mood to take his bait. Geese and other non-diving birds are seized in the snapping-turtle technique.

Even Cicero, two thousand years ago, commented on the realism of the Angler's disguise. And Swedish fishermen loathe the fish for a good reason: For centuries they have handed down the belief that to bring an Angler aboard ship meant certain death shortly to some one in the crew. Coming closer home, some Massachusetts fishermen believe that a disastrous storm is sure to follow if an Angler is brought to the surface.

One of the most amazing color-

change artists among fish is the flounder. With changeable skin pigments—yellow, brown, black, and white—it can quickly switch not only its color but also its markings to match background patterns. In the photo of the flounder, for instance, the gifted fish is shown against a background of granite. After having been on various backgrounds for a week, Mr. Flounder found it easy to "melt" completely into his new home. Even the sharp-eyed camera was almost stymied in its attempt to pick up the oval outline! On sand or clay or other material the story would have been the same: the flounder would have blended in with incredible perfection.

A MEMBER of the flatfish group, the flounder is found mostly off the Atlantic and Gulf coasts. Reaching a length of twenty inches and a weight of five pounds, it is an excellent food fish. There are two types, the winter flounder and the summer flounder, and the female of either may deposit up to *one million* eggs during the spawning season!

Countless other fish are protected or disguised to promote ease of natural ambush by strange shapes and colorings. There is the Nassau grouper, which turns dark and scoots for cover when alarmed; normally it is brilliantly colored. And in our United States waters we have the gar pike which bears close resemblance to tapered logs as they float on the surface of muddy bayous or streams, or rest in nooks near the bottom. This odd likeness to round timbers often makes feeding a cinch as they remain motionless and

wait for their meals to practically swim into their jaws.

The male bowfin, during the breeding season, casts off its usual bronze color and takes on hues to match the shadowy tints of surroundings, even to duplication of the colors of floating leaves and shallow-water vegetation. This, of course, helps to provide a guarantee against rude interferences during the courtship period.

In the warm coral-laded waters of tropical zones there are fish as brilliantly colored as butterflies; yet they are scarcely visible because they blend with astounding perfection in the beautiful coral color-schemes. And just as remarkable is the fact that the young of various marine creatures, such as the eel and the lancelet, are transparent. Too, in one way or another the batfish, the trunkfish, the filefish, young gars, and many more display equally miraculous examples of rare achievements in camouflage.

SO GOES a brief word-and-picture glimpse of the prodigious population that is incessantly on figurative parade beneath the globe's far-flung waters.

Pennsylvanians can lay native claim to none of the really astonishing members of the fish tribe, but this needn't ever breed envy nor painful curiosity. Instead, we should consider the words of an ex-Marine who declared: "I've seen some fish that I swore weren't fish at all, and I can offer a good wager that residents of areas where they occur would swap the whole population of their freakish fish for a few of our *edible* Pennsylvania bass and trout!"



Steel bridge, in final stages of erection, is located at Rock. It will provide main entrance to project.

Showing construction of diversion dam. This will furnish creek water for the project.



PROGRESS REPORT ON BENNER SPRING PROJECT

Actual construction on the new Research Project at Benner Spring in Centre County began June 1st of this year with the receipt of equipment and materials.

The first phase of the work consisted of cleaning and grubbing the area to be developed and the construction of water control devices. Through the cooperation of the Pennsylvania Department of Highways, an abandoned bridge was removed from Jefferson County, transported to Centre County and reassembled at Spring Creek where it now provides an entrance to the project.

Low water conditions facilitated the construction of the spring enclosure and laying of a 30-inch pipeline needed to conduct the spring's flow of 8,000 gallons per minute along and through the creek to the research building and ponds.

With the construction of a diversion dam and an aqueduct for supplying stream water to the project, the work necessary to control water for the project has been completed.

The next phase is construction of experimental ponds and aqueducts for holding fish and the final phase will be construction of the research building.

Progress to date is according to schedule and it is estimated that the whole project will take about two years to complete.

PENNSYLVANIA FISH COMMISSION

Photographs By
GEORGE H. GORDON



A 30-inch cement asbestos pipeline is needed to conduct spring water to the research plant.



Benner Spring, in foreground, has a flow of 8,000 gallons per minute. Control device and pipeline may be seen in background.

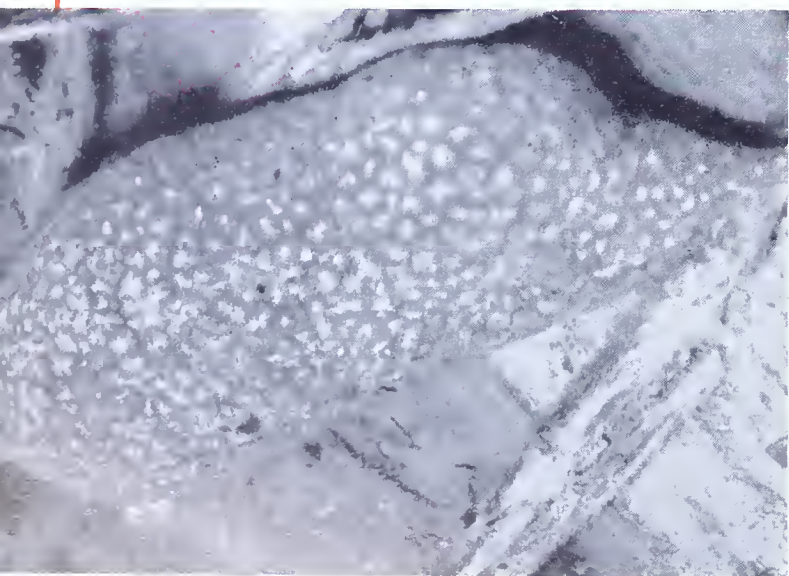
Eventually there will be a research building with hatching house and nearly 200 experimental ponds and raceways in this 13-acre area.



Bryozoans or Moss Animals



This is NOT a group of frog's eggs but a bryozoan colony growing around a tree trunk which has been removed from the water.



Underwater photo of a bryozoan colony, genus *Pectinatella*.

A chunk has been cut from this bryozoan showing the jelly-like consistency of the interior.



By **ARTHUR D. BRADFORD**
Pathologist, Pennsylvania Fish Commission

Photos by **George H. Gordon**,
Official Photographer, Pennsylvania Fish Commission

IF YOU have ever seen a glob of jelly-like material on a water lily stem or other submerged object, you have probably wondered where it came from, whether it was living or dead, or just what it could be. Actually, you saw a colony of primitive invertebrate animals known as bryozoans. This name means, literally, "moss animals."

These colonies may occur, depending on the species, as threads or crusts on submerged vegetation, sticks or stones and other objects; or as solid jelly-like masses which may reach the size of a football. Each colony is composed of many animals which are usually so small that they can only be detected as individuals by the aid of a strong hand lens or microscope.

The individual bryozoan does not look like an animal at all, but has the

appearance of a minute plant. However, when one is watching a live specimen through a lens or microscope, tentacles can be seen to emerge from a plant-like body. These tentacles aid in catching the microscopic water organisms which are utilized as food.

Reproduction in most animals may occur in several ways. These include egg laying, budding and the formation of statoblasts. These statoblasts, which appear as seed-like bodies on the surface of the colony, are very resistant to freezing or drying and serve to carry the bryozoans over unfavorable periods such as the winter months. These seed-like bodies also may be carried by waterfowl from one area to another, thus widely distributing the species.

Bryozoans are fairly common in Pennsylvania waters and occur in

streams, ponds and lakes. Most species probably have little or no economic importance and are harmless. However, one species classified in the genus "*Lophopodella*" causes trouble in certain hatchery operations in this state. Wherever hatchery ponds are heavily fertilized this bryozoan may multiply rapidly and encrust all submerged objects. When these colony crusts are disturbed and crushed, a toxic substance is released which can kill most species of fish within a few minutes. Warm water hatchery operations in some cases have had to be altered considerably to cope with this menace.

The accompanying photographs of a common Pennsylvania bryozoan, *Pectinatella*, should help the fisherman to identify this species when next encountered.

Actually the living portion of *Pectinatella* occurs only on the outside surface of the globular mass. Here a close-up of the animal colonies shows the typical branching pattern.



Memorial Lake to be Managed by Penna. Fish Commission

PENNSYLVANIA FISH COMMISSION

Photographs By

GEORGE H. GORDON

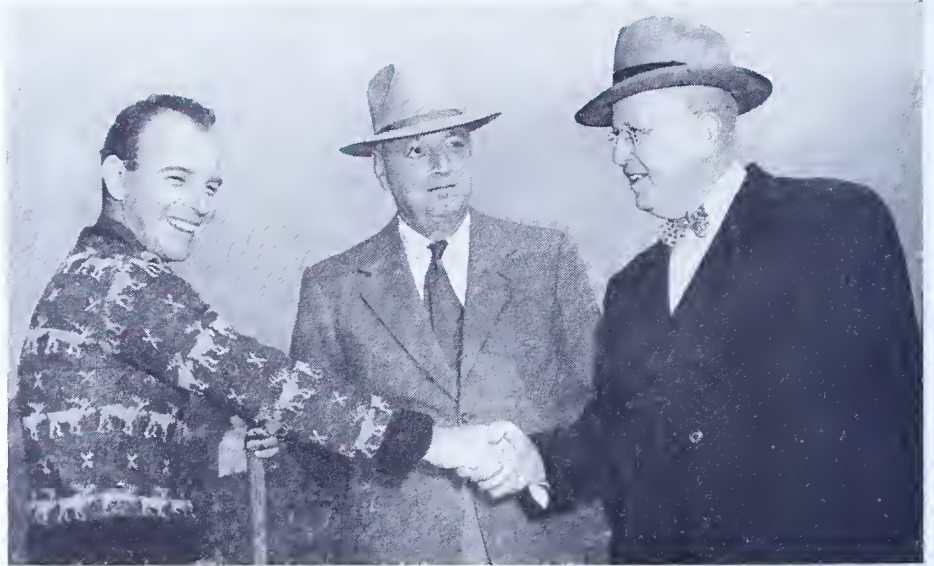
Indiantown Gap Waters Set Aside as Nursery Project in 1952 Pennsylvania Week Activities

Of much interest to the fishermen of Pennsylvania was the recovery of hundreds of fine black bass, catfish and suckers from Memorial Lake at the Indiantown Gap Military Reservation early during Pennsylvania Week 1952.

The lake through cooperation with Major General Frank A. Weber and the Pennsylvania Fish Commission and in complete harmony with the Governor's office, has been set aside as nursery waters for the use of the Fish Commission. Governor John S. Fine in company with C. A. French, Executive Director of the Fish Commission and General Weber were present to observe the initial program which will be carried on throughout the succeeding years.

The work was accomplished by a crew of hatchery employees under the direction of Robert J. Bielo who with the use of trap nets, drag seines, etc., skillfully and carefully removed these fish from the lake where public fishing is prohibited and transported them to the Huntsdale Hatchery in Cumberland County. At the Huntsdale Hatchery the fish will be carefully segregated and in turn will be placed into waters open to public fishing throughout the state.

Governor Fine was much impressed with the operation and expressed his enthused satisfaction that it would contribute much to further expand the program of stocking these fish where the public can have an opportunity to enjoy the sport of catching them.



Governor John S. Fine shakes hands with Robert J. Bielo who was in charge of harvesting the fish crop while C. A. French, Executive Director of the Fish Commission, beams his satisfaction with the project.

Governor Fine displays much interest in one of the black bass recovered from Memorial Lake.



Progress report on fish management in Pennsylvania

By GORDON L. TREMBLEY

Chief Aquatic Biologist, Pennsylvania Fish Commission

AT THIS meeting two years ago we described to you the results of the first two years of the Pennsylvania Fish Commission's Fish Management Program. At that time we had made studies on 12 lakes. To date, we have conducted intensive management studies on 31 lakes and ponds, as well as a number of streams and two rivers. This appears to be a fairly good record when one considers that the work has been conducted largely during the summer months and by a crew composed of two or three regular staff members plus three or four temporary assistants. In addition, two other staff members have investigated a total of 167 streams and ponds during the last two years.

Today, we wish to present a brief summary of our lake work which has as its sole aim the promotion of the best possible fishing in the waters of the Commonwealth.

Essentially, this work is a study of fish populations and of the factors which affect fish life. In treating fish populations we have been guided by the principle of fishery biology that a unit volume of water can support only a certain poundage of fish. This will be brought out later. We realize, too, that each lake is a little world unto itself—at least as far as fish populations are concerned. Therefore, the management recommendations for one lake may be practically the reverse of those for another lake.

Certain general problems have been uncovered, some of which are common to many of the lakes studied. A listing of the more important of these follows.

1. *Panfish and coarse fish are too abundant in some of our lakes.* There is certainly a place in our lakes for such species as bluegills, bullheads and yellow perch. But the spawning potential of these species is high and, unless there are enough large predators present to keep their numbers in check or unless their numbers are reduced otherwise, the population of the major game species will suffer. Expressed in

From a paper presented at general meeting of Pennsylvania Federation of Sportsmen's Clubs, September 20, 1952.

another manner, if too much of the total fish poundage in a lake is tied up in pan and coarse fish the poundage represented by game species will be restricted.

2. *When these species become over-abundant, the usual result is stunting.* Everyone enjoys catching a nine-inch bluegill or a 14-inch yellow perch. But these fish become pesky critters when their average size is reduced to less than six inches through stunting.

3. *Some lakes have too many fish species in them.* In some small lakes we have found both large- and small-mouth bass, walleyes and pickerel in addition to the usual run of panfish and minnows. Fishermen are partly responsible for this as they have made indiscriminant plantings of fish with little regards to the needs of the lake. It has been our sad experience to see a good pickerel lake converted into a mediocre bass water by the planting of the latter species by some thoughtless individual. Incidentally, the Pennsylvania Fish Commission is vitally interested in preserving the fine chain pickerel fishing which has been enjoyed for so many years in northeastern Pennsylvania.

4. *A few lakes appear to have a fish population which is too low.* This may be due in part to the absence of those fish species which are best adapted to these lakes.

5. *Selective fishing may be a factor contributing to unbalanced fish populations.* Fishermen naturally like to catch big bass, big walleyes and big specimens of most any fish species. The removal of this "cream of the crop" may result in an increased number of panfishes. A partial answer is heavier fishing for the panfishes.

6. *The balance between predatory fishes and forage fishes is so favorable in some lakes that it is difficult for the angler to harvest the crop.* In at least two lakes investigated by us this was the case—the fish were there but hard to catch. This should be a challenge to any fisherman.

7. *From the physical standpoint, some reservoirs are rapidly filling with silt.* This is particularly true in reservoirs having a large stream as an inlet. Naturally, the life span of these waters is greatly reduced by this factor.

8. *The motorboat problem.* It is probably true that motorboating upsets the fisherman more than the fish. Surely nothing is more disconcerting to a fisherman than to have his line cut or his boat nearly swamped by a passing speedster. We have seen every degree of this conflict from bad-name calling to open naval warfare. While we are prone to favor the angler, we must remember that the motorboat enthusiast has a right to his type of recreation too. Perhaps a little more understanding on the one hand and a little more courtesy on the other would help the situation.

These, then, are some of the problems. What is being done about them? Following are management measures which have already been put into effect.

1. *Change of stocking policy when needed.* When a fish species is already abundant in a lake, further stocking of this species has been discontinued. This allows the hatchery stock to be used to best advantage elsewhere.

2. *Adding new species.* Some lakes now support low populations of warm-water species. In cases where these lakes meet the requirements of trout we have introduced trout. Creel censuses showed that the returns here were good in comparison with trout plantings in streams. We have found that many anglers prefer trout fishing in lakes over streams. Trout fishing in Pennsylvania is largely put-and-take, but it is our belief that the carry-over

of trout from one year to the next is better in lakes than streams.

3. *Lake reclamation.* We have indicated that some lakes become almost hopelessly out of balance. In extreme cases about all the lake can offer the angler is a few million stunted fish. A lake in this condition is obviously of little value. Drastic action is called for here.

We are just now beginning a program of draining these unbalanced waters, removing the fish populations, refilling and restocking with suitable species. In instances where it was possible to leave the lake basin dry for a time, we have sown rye grass. When this crop is flooded, it dies, decomposes and furnishes fertilizing material to the water. Our work in reclaiming these lakes will be greatly facilitated when the legal use of poison is granted to us.

4. *Stocking new lakes.* The Fish Commission has adopted the policy of stocking newly impounded waters with adult fish whenever possible. This serves the dual purpose of establishing the correct species early in the life of the lake and offering the angler immediate fishing.

5. *Improving the environment.* Brush shelters, adapted to the needs of lakes, are being tried experimentally. In one lake, shelters were installed to serve as hiding places for small bass. In a flood control reservoir, where natural hiding places are at a minimum, we plan to establish a number of shelters designed to attract adult fish. The location of these shelters will be marked and fishermen will quite likely increase their catches by fishing around them.

6. *Lake fertilization.* Thus far, our work on lake fertilization has been experimental and confined to a single lake. We wish to be sure of our results before expanding this part of the program.

7. *Creel censuses.* In addition to the general creel census conducted by our wardens, we have had rather complete creel censuses on a trout lake, a trout stream and a large warm-water lake. We feel that these censuses, combined with a marking and tagging program, are the best means of learning the true picture of the catches in any water.

In conclusion, we should like to make a few predictions as to the future of lake management in Pennsylvania.

1. *There will be more public fishing lakes in Pennsylvania.* Both the Pennsylvania Department of Forests and

(Turn to page 28)

Woodland

How startling—and sometimes baffling—are the ways in which



*"My woodland throne,
I must confess,
Was won by means
You may not guess."*

*A branchlike root
Above the ground—
Did the rock rise up
Or the tree slip down?*



Wonders

ows with all odds against it!

By **WILLIAM M. HARLOW**
New York State College of Forestry

Photographs by
HELEN FAYE

ONE of the most interesting things to observe in the woods is the manner in which a young seedling tree makes the best of a seemingly hopeless or at least difficult situation and manages somehow to live and grow and even to prosper. In these days of Existentialism and other hopeless philosophies, it does one good to walk along a woodland trail and to see trees like the ones pictured on this page. They were all photographed in Cook Forest Park, Pennsylvania.

The first photograph shows a fairly common situation in which such trees as black birch, yellow birch, and hemlock manage to extend their roots along the surface of a rock upon which the seed fell, and eventually to reach the ground below.

The tree shown at lower left is not so easily explained. There seem to be two possible answers. The first is that it started on top of a small stump which was close to the rock; the stump finally rotted away, but not until a root had grown laterally over to the boulder. The other possibility is that the young tree grew in some moss at the edge of the rock and slowly shifted to its present position. However, it is quite possible that neither of these suggestions furnishes the correct explanation!

The trees in the two other photographs very evidently began life on an old, perhaps rotting log which has long since disappeared.



*"From front and rear
I ape a dancer,
But why I'm arched
Is YOURS to answer."*

*Did these roots
Deny their birth
By springing upward
From the earth?*



Pale Empress

Of The Night

Most anglers are not only fishermen but amateur naturalists as well, observing DAME NATURE in her most wonderful forms. Here is a life cycle picture story of a little-known, interesting and exotic insect, familiar only to anglers who fish in the night!

Story and photographs by
J. CASEY

4 ONE MONTH OF AGE—After stuffing themselves on pecan and walnut leaves day and night for one month, molting eight times, the caterpillars were many, many times the size when first hatched. Three inches in length, a pea-green color with ten rings of brighter green circling plump bodies, eight rows of vivid ruby-red dots, heads and feet a rich brown, the caterpillars were very attractive . . .



FEMALE LUNA MOTH—Early one morning in late summer clinging to the bark of a tree, was a large Luna Moth. By the plump body and thin antenna, the creature was easily identified as female.

1 Living most of her life in a state of infancy, and having only few rapturous days of adult-hood, the winged beauty had evidently made the most of those few days. Because of her torn, broken, drabbed and faded wings, it was apparent she had found her mate, and for a few blissful hours had known life to the fullest extent. She now had but one more task to perform in these—tho' waning hours of life—lay her eggs . . .

5 **ADULT CATERPILLAR**—On the 31st day of life, one of the large caterpillars withdrew from the others. There was a slight change in appearance—it was not quite so plump, nor as brightly colored as heretofore. The most noticeable change however, was the fact it was just nibbling at a choice leaf, instead of eating as rapidly and greedily as possible, as had been its habit . . .





2 EGGS OF LUNA MOTH AND NEWLY HATCHED CATERpillars—Placed in a box in a dark room, the Luna was left in peace. Within a few hours she had laid several eggs—bluish-green, like shining dewdrops she had fastened them to a clothes pin and twig which were in the box for her to cling to. Her life's work was finished—Eight days later incredibly small caterpillars hatched. Dark green in color, the tiny creatures started eating pecan leaves almost as soon as they were out of the shells. Authoritative sources say each tiny Luna caterpillar eats food weighing 86,000 times the larva's weight in the first 48-hours after hatching . . .

6 BUILDING SITE SELECTED—There was soon a perceptible change of color—from green to amber. Having emptied the digestive tract, the caterpillar was shrunken to about half its former size, and moved restlessly from twig to twig, closely inspecting each until a suitable location, where two leaves formed a sort of frame work, was selected . . .

3 LUNA CATERpillars TWO WEEKS OF AGE—Having voracious appetites, consuming unbelievable amounts of foods, caterpillars are generally not numerous enough to damage trees upon which they feed. Eating constantly—24 hours a day—except for short periods when molting, and even then they ate the discarded skins which they had outgrown, the caterpillars grew rapidly. Each new skin was a lighter green, and for a few hours after molting, the usually brown heads were bright green . . .

7 FIRST STEPS IN COCOON CONSTRUCTION—One of the most fascinating stages of the Luna's entire career was beginning—the caterpillar was spinning the first threads for the silken cocoon, and using them to tie leaves together in a sort of cradle shape . . .





8 COVER FOR CRADLE—With its razor-sharp teeth, it was no problem at all for the caterpillar to snip off a leaf from a lower twig, but it seemed a problem as to how it could get the leaf up to where it was needed. This, however, was soon solved. Attaching a silken cable to the leaf, letting cable out as it climbed up the twig, arriving at destination, the caterpillar then drew the leaf up much in the manner of a person drawing a bucket out of a well. Soon the leaf was in place, making a neat cover for the cradle.

12 OUT IN THE OPEN—With a few struggles, the moth was entirely free of cocoon. Presenting a sorry sight, it started crawling away at a rapid gait. Surely this worm-like creature with tiny, moist wings could never, never be classed as a beauty!

9 FRAMEWORK FINISHED—With leaves fastened together with silken threads, inside but still visible, the caterpillar started the arduous task of filling the openings. Every tiny crevice would have to be filled in order that the winter quarters would be water and cold proof.

13 WING EXPANSION BEGINS—The odd looking creature crawled up a twig where it flexed the short wings experimentally. Soon the body seemed to contract somewhat and the moth vigorously worked the wings up and down. With each effort the wing-veins filling, began to expand and looked a little more like real wings than damp rags, but they were still misshapen and moist.





COCOON FINISHED—After exactly 24 hours of frenzied work the cocoon was completely finished.

The silk is produced in two specially constructed vessels which contain a gelatinous substance. The silk organs unite at the mouth to form a common duct, called a spinneret. Through this tube the semi-fluid substance is ejected, which coming in contact with the air hardens into silk.

Cocoon was removed from twig, put on a bed of moss in a box where it was kept throughout the winter. It was sprinkled with luke-warm water every two or three weeks, but not kept too warm, else the moth emerges before leaves are out, and there would be no plant food for caterpillars.

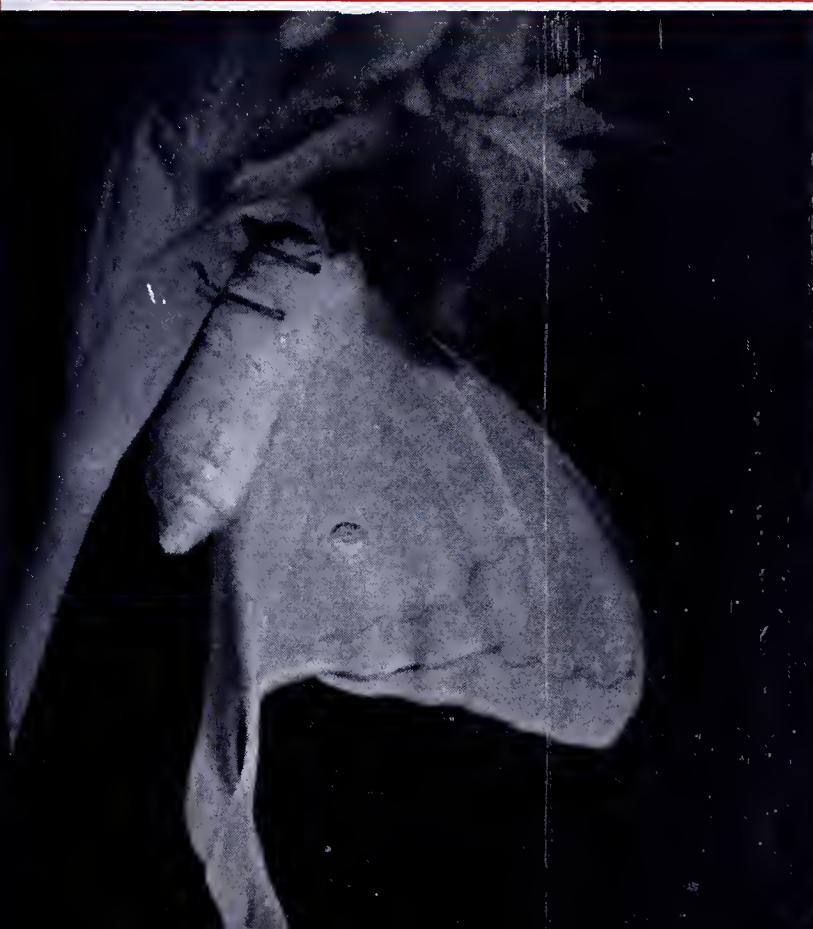
FROM ODD FORM TO EXQUISITE BEAUTY—Still rapidly crawling from one object to another, the moth climbed up an iris stem and seemed to settle down. One hour after the moth left the dull winter wrappings a most exciting and beautiful sight had transpired, and as an education in the mysterious ways of Nature, it was, indeed without parallel. The wings reached full growth, expanding into symmetrical loveliness, and the creature grew more beautiful by the minute. Although having attained full size within 30 minutes after leaving cocoon, the delicate wings were still soft and incapable of supporting the insect in flight. Another 30 minutes saw them hardened and ready for flight . . .



11 "COMING OUT PARTY"—Finally the great coming-out day arrived. In the early part of May, a sort of scratching sound was heard coming from the cocoon. Hastening to set up camera, one quick shot of the Luna with head and wings just out of cocoon was obtained. This is the only picture of the actual emergence of a silk moth from the cocoon that we have ever seen.

15 ADULT MALE LUNA—A lovely ermined-furred body, curveous and beautiful, straw-colored dense feathery antenna, legs and feet delicately orchid-toned, harmonizing with the lavender band on front margin of fore-wings, floated gracefully through the air—his first flight—on wings of pale green, seemingly adorned with flashing living gems, the eye-spots transparent, but surrounded with rings of pale yellow, blue and black.

Small wonder the Luna, easily distinguished from other silk moths by the long crisp trailers, is considered the most beautiful insect in America.





Religion

in the rough

By KEITH C. SCHUYLER

that you consider mine as expressed here.

We are all conscious of the diminishing fishing waters in the face of a growing number of anglers. We see and predict further inroads of commercialized sport. And, many are the reasons given for it.

As I see it, the cure is an individual proposition. It all evolves into a need for more religion, a code of ethics, to be followed by the individual angler. A code which transcends the boundaries of society's censorship; a religion in the rough that is written and carried in the conscience.

To that end, the following is respectfully dedicated to better sportsmanship. Better fishing, I believe, would be a natural byproduct.

ETHICS ASTREAM

Need for a moral code astream was not so evident a comparatively few years ago. But in this era of diminishing water and increasing anglers, behavior of the individual is essential to perpetuation of fishing as a sport.

As in hunting, with exclusion of the rare cases of need and of justified commercialization, fishing is no longer a necessity. The fellow who needs fish to sustain him and his family could not afford the price of a license . . . where a license is necessary.

Few will turn up their nose at a fine trout dinner, but practically no one in this nation can justify his fishing as a means of supplementing his larder. We make exception, of course, to those areas where river people depend upon an almost unlimited supply of pan fish as a part of their diet.

Fishing, then, is today primarily a sport.

Although our forefathers most certainly enjoyed fishing on occasion as a form of recreation, their trips astream cannot be classified as sport. All sport is recreation, but not all recreation is sport.

There was little need for Great Great Grandfather to count his fish or to invent ways and means of making them more difficult to catch. There was plenty of water and plenty of fish. He could walk for miles along a stream without meeting another angler. His chief concern was to get away from his chores for a few hours while obtaining fine food not available at the grocery store.

Unfortunately, too many today are using modern methods to catch their fish while employing the same reasons that were justifiable only in Great Great Grandfather's day.

Right here we must establish a distinction between sport fishermen and those who are merely out for recreation. Both must usually buy a license, both inhabit the same areas during the fishing season, both are after the same thing. But, at this point the similarity ceases.

Yet, and mark this carefully, both have equal rights and privileges under the law. Since they many times fish side by side, each must respect the other's rights.

And mark this too, the fellow with the antiquated or crude equipment may have the same desires for sport and sportsmanship that the more fortunate of us have acquired. He might be on his first fishing trip, equipped with tackle recommended to him by some dreamy-eyed sales clerk who received his outdoor training by an open window. Or, he may be using a rod given to him; it might be the

AMERICANS, especially sportsmen, dislike being dictated to. However, almost any one of them will listen to reason and accept suggestions if you can prove the need for them.

When it comes to fishing, no one person holds all the right answers to the growing problems confronting the sport and those who seek it. Probably few would be willing to stick their necks out as far as I plan to in the following paragraphs.

However, as one who is keenly interested in seeing the sport continue as a "free sport" right here in our state of Pennsylvania, I have made certain observations in years of association with fish and the men who try to catch them.

Probably you, too, have developed certain opinions as an angler. I have every respect for your opinions and beg

only equipment he can afford at the moment.

Beneath the exterior of the most crude novice may beat the heart of the finest of sportsmen. One rarely ever knocks out a home run on the first swing at the ball.

Personally, I have every respect for the old fellow parked by his warming fire as he fishes several throw lines for suckers or catfish. I have done it many times myself and expect that I may many more times. But this cannot be considered sport. If we compare it to other pastimes requiring particular skills and abilities.

I have tolerance for the fellow splashing along my favorite trout stream with a casting rod from which dangles three eel hooks loaded with nightcrawlers and a one ounce sinker. But I do not consider him a sportsman in the true sense of the word. He is undoubtedly enjoying himself and may catch more trout than I; but he often has one eye on a bit of recreation and the other on a fish dinner. On the other hand, next year he may be using equipment that you and I would envy.

Although I claim a distinction between sport fishing and recreation fishing, I do not deny those following their individual bent, their equal privileges.

But, in this distinction between the two and within the scope of their individual choosing, lies a strong need for a code of ethics. Upon adherence to fine principles rests the future of fishing in America, both as a sport and as recreation.

Whether the man out fishing considers himself a sportsman or just a lucky fellow with a few hours to kill, his responsibilities are the same.

First consideration from the angler should begin with the victim of his sport . . . the fish. Although we need not have the same deference toward the inhabitants of water as for the denizens of the woods and fields, from a humane standpoint, there are many reasons why we must maintain a considerate attitude toward them.

THE man who takes home more than his share of fish not only robs the next fellow of a fair chance to share in the sport, but he is minimizing his own chances to enjoy future fishing in the same waters.

Most fishing laws are liberal from the standpoint of creel limits. However, the real sportsman is interested only in enough to provide him and his family with an occasional fish dinner.

The angler who is constantly supplying the neighbors with fish that he himself doesn't actually want, is spoiling his own sport for the pleasure of empty compliments.

Anyone who finds pleasure in releasing a fish that he might catch it again would never trade the warm inner feeling it gives him for the selfish smiles of those who accepted his previous handouts. This is not to say that it is unsporting to give away a fish, but it is meant to discourage those who judge success of their fishing trip by the number of fish they bring home. So . . .

Feast on your sport, but carry a light creel.

Even those who care nothing for fish and seldom bring any home, often times leave many dead ones in the water. This is usually the result of ignorance or a bad temper.

Some anglers do not realize that a deeply hooked fish will very likely recover if the leader is cut and the fish is returned to the water. Powerful acids in the fish's body will dissolve the metal, and the leader is of no consequence if it is cut close to the fish's lips as possible.

The bad tempered angler will be angered over the insistent biting of small fish and rip the hook from them. Or, his friend might be the type who works vigorously to free the hook and save the few cents that it costs while actually intending to free the fish. The net result is often the same . . . a dead fish. Even rough handling of any fish can doom it no matter how lively it swims away.

If you are one of those fortunates who have easily accessible waters where there seems to be an unlimited supply of fish, remember that all waters of this nation once abounded with them. If you had to spend all your angling time along some of the heavily fished waters of the East, you would soon realize that we must protect good fishing wherever it is.

Each fish is potential parent to thousands of little ones and must be considered individually. So, using a variation of one of the mottoes of the Pennsylvania Fish Commission, we recommend . . .

To catch more, kill less.

Before going into reasons for the next rule, I must fortify myself with the statement that I do not represent any commercial interests. If you never visit a sporting goods store, I won't hate you. But I will think you are missing a good bet.

My complaint, which I add to that of many conservationists, is that too many anglers are robbing the streams and lakes of their natural food.

Minnows, frogs, hellgrammites, crayfish, lizards and many other creatures of the water and the shore are being wasted in the name of sport. This natural food of the fishes must also supply the wants of countless shore birds, certain species of ducks, aquatic animals and animals which frequent the shoreline when in search of food.

Practically none of this natural food is wasted when it goes to sustain other creatures of the wild, but with man it is a different story.

Who has not seen a dock or a boat landing littered with the rotting bodies of so-called live bait? How many times have you ever seen all the minnows in a fisherman's pail put to good use? How many times during a fishing trip is it necessary to throw away a dead bait and replace it with a live one?

THERE are so many other live baits that are effective on fish, which can be readily spared by nature, that there is no legitimate reason for continuing the waste of the creatures which are the normal food in and near the fish's habitat. Chief of these is the old garden hackle . . . from lively little red worms to big fat nightcrawlers. Bugs, grubs, beetles, grasshoppers and many other destructive insects are available as substitutes for those who must have live bait.

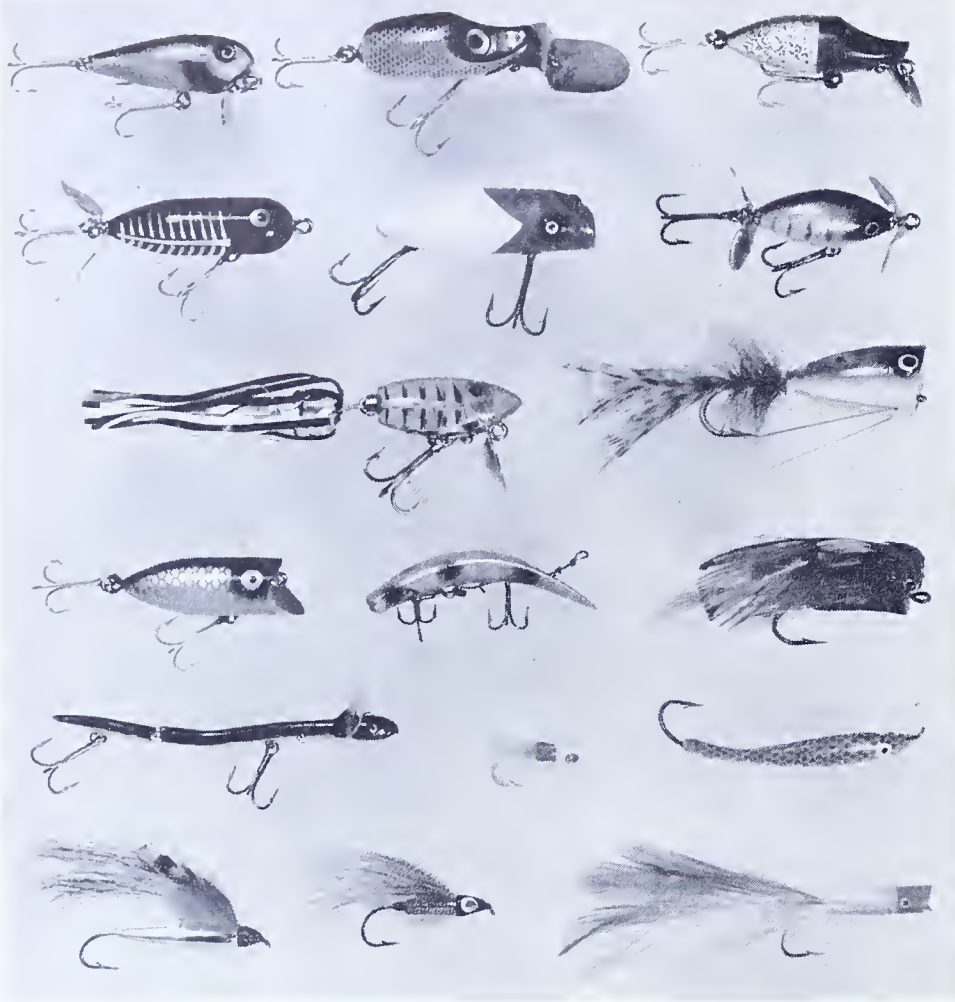
For those who have a commercial supply of minnows available, there is no argument . . . as long as the salesman is actually raising the minnows and is not stealing them from the natural store.

To give the commercial producer of artificial lures his just due, we cannot ignore the thousands of variations of plugs, flies, streamers, spoons and call-it-what-you-wills that litter the sporting goods counter. Call it an ulterior motive if you wish, but the makers of artificial lures have done more to put angling in its proper perspective as a sport than any other factor.

The satisfaction that comes from having fooled the fish with a product of metal, wood, feathers or plastic is something above and beyond the call of just plain fishing. And the results justify the means. Many of the largest fish are taken on artificials.

For instance, in a 1950 fishing contest, the biggest lake trout, brown

(Turn to page 28)



SPINNING PLUGS AND MISCELLANEOUS LURES

(L. to R.) Barracuda "Super Midget," Tulsa "Bee,"
Heddon "Tiny Runt"
Heddon "Tiny Torpedo," South Bend "Midg-Oreno,"
Phillips "Midget Killer"
Tulsa "Bizzy Bee," Phillips "Weedless Popper"
Heddon "Tiny Lucky 13," Helin "Flatfish," Longendyke "Moth,"
Garcia "Pecos Eelet," Barracuda "Baby Dude,"
Lily Bay "Moosehead Minny"
Weighted Streamer Fly (cast body), Weighted Steelhead Fly
(wire body), Pequea "Quilby Minnow"

How to select *spinning lures*

By JOSEPH D. BATES, JR.

THE tackle counters and racks of the sporting goods store were loaded with countless dozens of plugs, revolving blade lures, wobbling spoons, weighted flies, and plain and fancy baits, in all sizes, colors and descriptions. Everything was there to tempt fish to their last meal and to induce fishermen to part with their last dollar.

While I leaned on the counter and contemplated this evidence of the ingenuity of man, there came into the store an unsophisticated fisherman who obviously had more money than experience, insofar as buying fishing lures was concerned.

"Need an assortment of spinning lures," he announced to the salesman. "You pick 'em out. I wouldn't know how to choose what I should have from all the hundreds you have here."

The salesman didn't bother to ask where our hero was going fishing; what strength of spinning gear he used, or what he planned to fish for. He quickly gathered together a unique collection of questionable creations, most of which would tempt only the hungriest and least educated of fish. Our unsophisticated angler plunked down twenty-five Truman dollars for this weird assortment and departed to do battle with the hoped-for "big ones" in his favorite stream.

We can be thankful that the majority of tackle dealers try to advise their customers more intelligently. But we also must realize that there are spinning lures which are good, bad and indifferent, and that they always will remain so. Dealers should not be blamed too strongly for occasionally foisting off a few lemons on unsuspecting anglers. Without doubt, they were bought in good faith—and, once bought, they have to be sold to somebody. Unfortunately, however, it usually is the novice fisherman who inherits them; fact which gives the beginner a hard time in getting off to a flying start in successful fishing!

A comprehensive assortment of effective spinning lures is easy to select if we buy them with purposes of use in mind. Let's try to decide upon a small but a sensible collection. Most important in this is to match the weights of lures to the power of the tackle. Lures too light will not cast effectively. Lures too heavy are unwieldy and may damage the rod or snap off the line. We can take correctly built split bamboo rods as our standard, at the same time realizing that the tougher glass fibre sticks permit a somewhat wider range in casting weights.

PENNSYLVANIA—ANGLER

Most fresh water spinning anglers use lines between four and six pounds in strength, with the power of the rod to match. This tackle calls for lures in the one-fourth to three-eighths ounce class. One-fourth ounce is about the maximum for three pound test lines and, for finer fishing, we should go a bit lighter. Avoid lures weighing a half ounce or more unless lines are stronger than six pounds test, with the power of the rod to suit.

Opinion varies as to whether revolving blade lures are more effective than wobblers. Both are extremely important. In the revolving blade class, select a few which are water resistant enough so that they will not sink too fast and hang up on the bottoms of shallow streams. The internationally popular "C. P. Swing" is an excellent example of a correctly built lure of this type. So is the "Rockland Flirt"—

both necessities in any spinning kit. To go with these, we need a few faster sinking spinners such as the "Birdwing," for use in faster currents or to go down deeper in pools and lakes. The blade of any spinner has a good deal of air resistance. For longer casts than the conventional spinner will allow, try a little propellor spinner, such as Lyford's "Proptic." This one is very much like the formerly popular Devon, except that it will not twist the line—a propensity of the Devon which relegated it to the dog house.

In buying any spinner, examine it to see that the clevis is loose on the wire so that the blade revolves freely. If a spinner twists the line, it usually is because the clevis has become jammed or has been wired on too tightly.

What finish should one select; copper, brass or nickel? Although opin-

ions vary, brass is most universally popular. More important than the finish is to have a bright spinner for high or cloudy water and to use a dull spinner when waters are low and clear. I have taken many trout and bass with the "Birdwing," for example, but, in clear streams, my most effective "Birdwing" is one that has been allowed to tarnish. Cloudy waters dull down the flash of a bright spinner—but the same one, used in clear water, may drive fish away instead of attracting them.

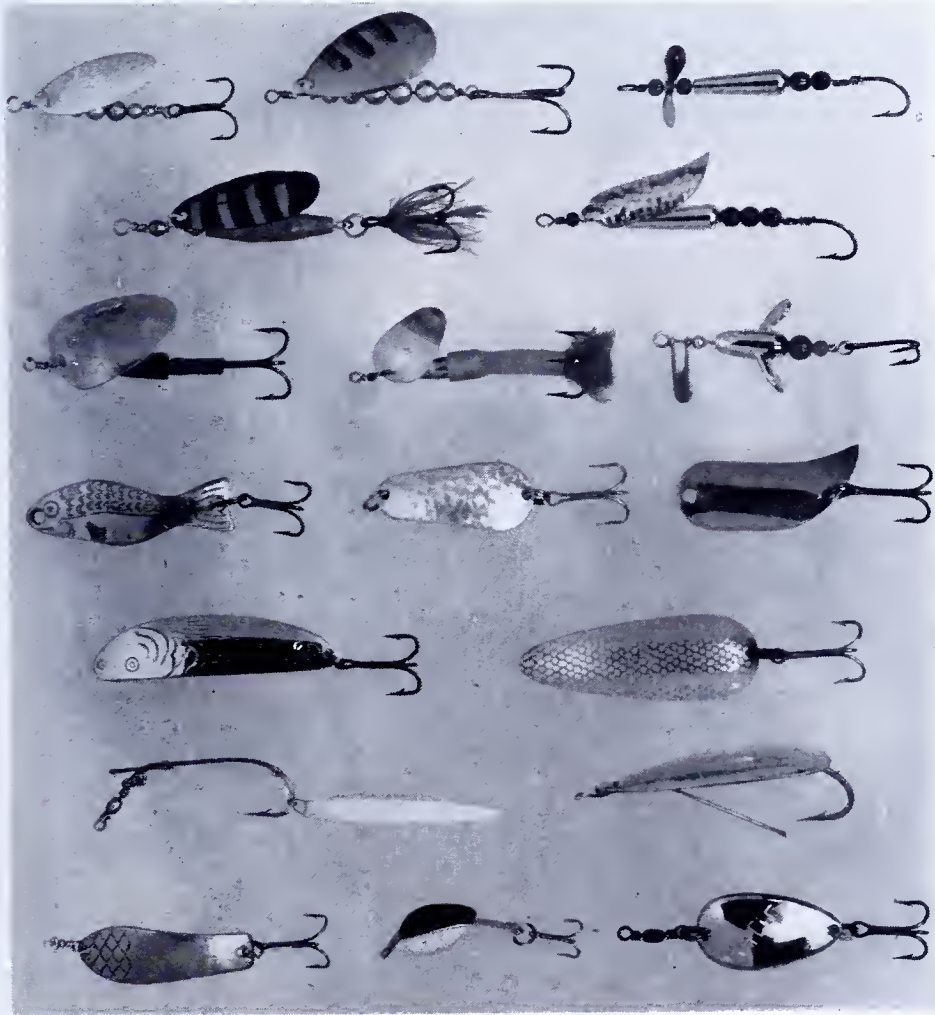
A lure can be dulled down by removing the lacquer coating with fly lacquer solvent or nail polish remover and allowing the metal to corrode. It can be brightened with fine steel wool or with a polishing cloth such as the "Blitz" cloth we used in the army. A little piece of "Blitz" cloth is very handy in the tackle kit for this reason.

In the wobbler department, the same thing holds true; a light wobbler for top-water fishing, and a heavier one or one more streamlined to go down deep. The "Birdwing" (which is made as a wobbler as well as a spinner) is an excellent top-water lure, in the smaller size for trout and the larger size for bass. The "Goldfish" or the "Phoebe" have very similar qualities, although the unusual construction of the "Birdwing" blade gives it a rather different action than the others. The "Wob-L-Rite" is a leading example of a relatively heavy, compact wobbler for deep fishing or for making extra-long casts. As with the spinners, we need a few bright ones and a few dull ones. On many occasions, these wobblers catch more fish when the hook is dressed with a small amount of hair or a few very short hackles. Many spinning fishermen dress several treble hooks in various color combinations and in several sizes. Since the hooks of most wobblers are attached by split rings, the hooks easily can be interchanged on the stream.

A colored wobbler, such as the famous "Dardevle" (in two-fifths ounce size for average spinning) is a valuable addition. It is easy to paint one's own wobblers with colored enamel, if desired—or to remove the paint and to substitute a different color upon inclination. In the "Dardevle," I like the red and white finish best; in fact, this is a universally good combination.

When fishing in weeds, a weedless wobbler, such as the Johnson "Silver Spoon" may be a necessity. It is not

(Turn to page 29)

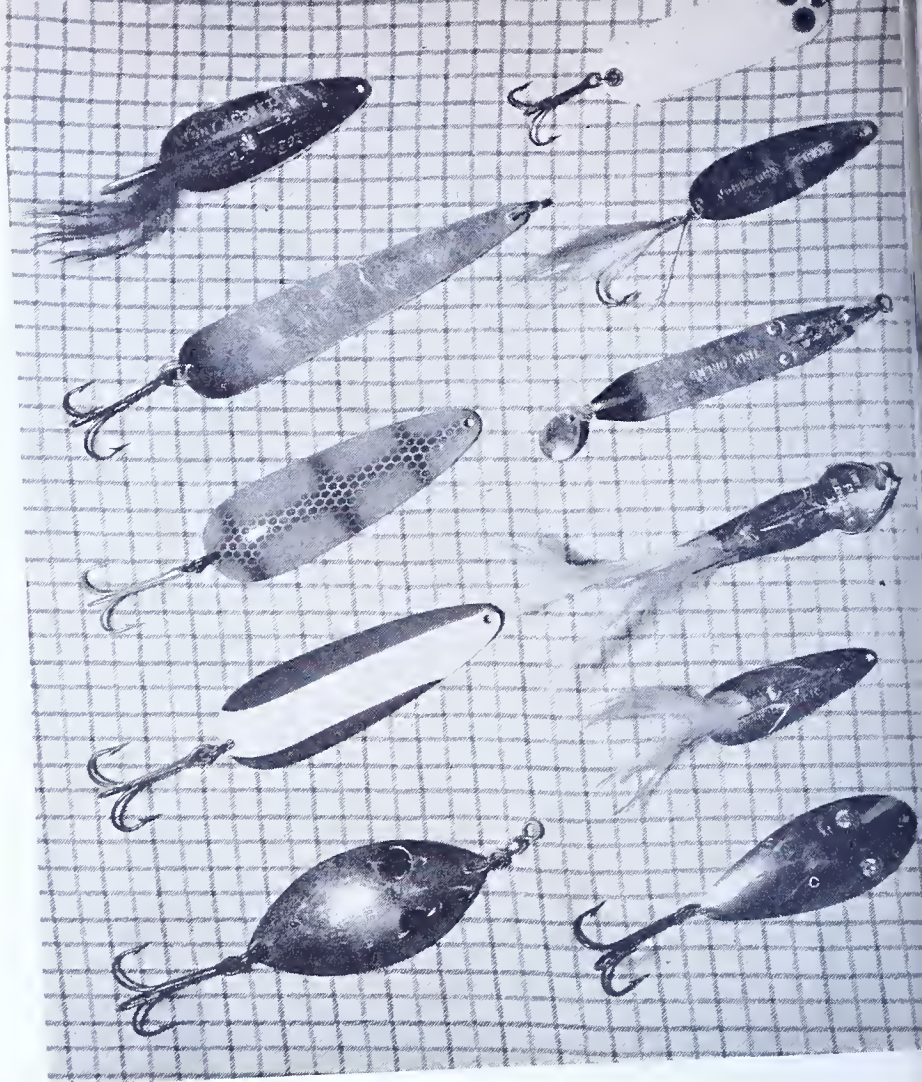


TYPICAL SPINNERS AND WOBBLERS
 (L. to R.) Rockland "C. P. Swing," Rockland "Flirt,"
 Lyford "Proptic"
 Garcia "Abu Reflex," Lyford "Birdwing"
 Garcia "Virex," Airex "Preska Perch," St. Claire "Tail-Lite"
 Stewart "Goldfish," Seneca "Wob-L-Rite," Lyford "Birdwing"
 Seneca "Side-Winder," Eppinger "Dardevle"
 South Bend "Trix Oreno," Johnson "Silver Spoon"
 Orvis "Long Spoon," Hayden "Multi-Wag," Garcia "Safir"

How Many Can You Name?

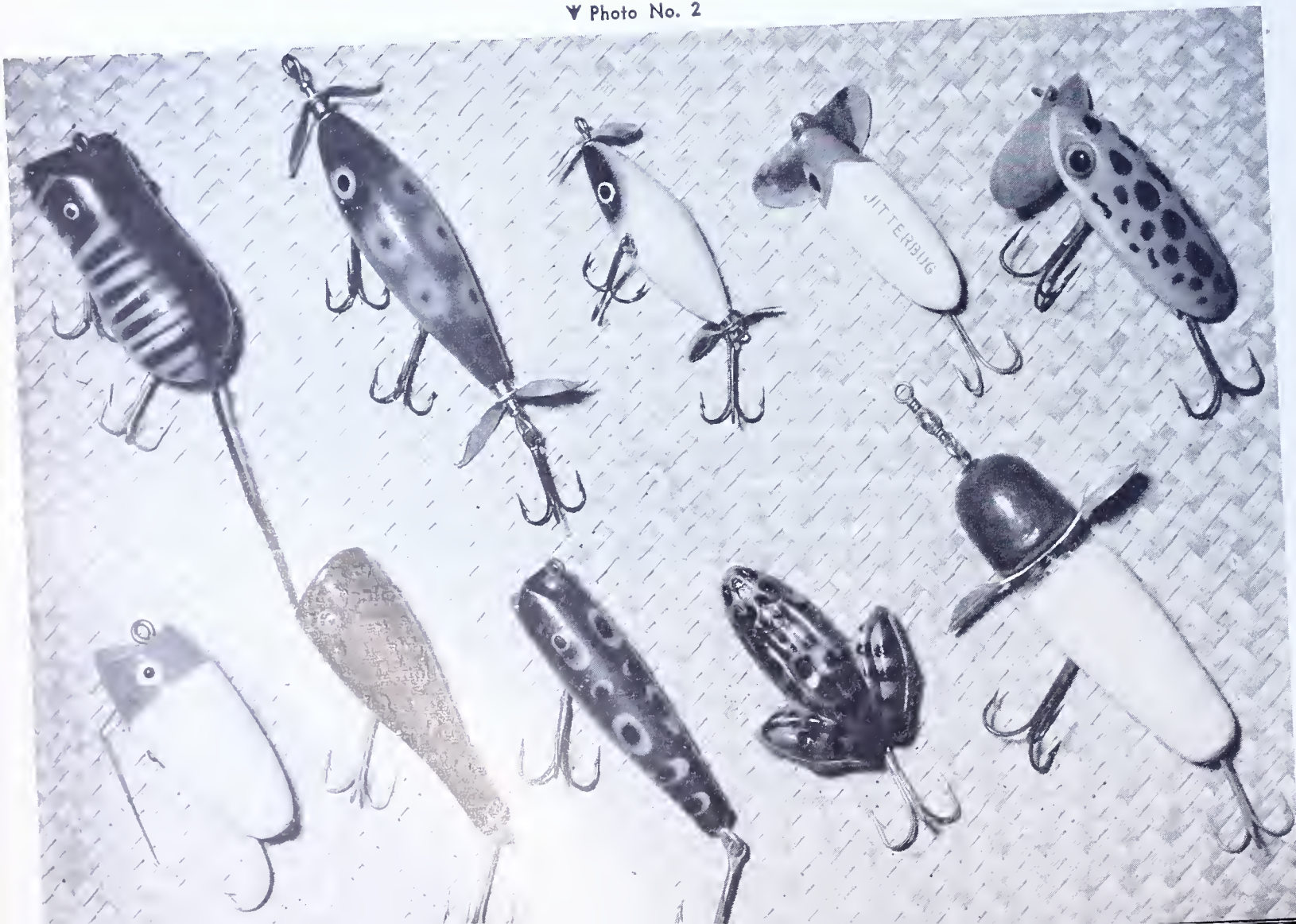
If you can identify all of these popularly used plugs, spoons and lures by their commercial names, Brother, you're either an expert or a genius! But . . . give 'em a try (several are duplicated to trick you so watch them) write your identifications under the lures on these pages then check your answers with those on page 32.

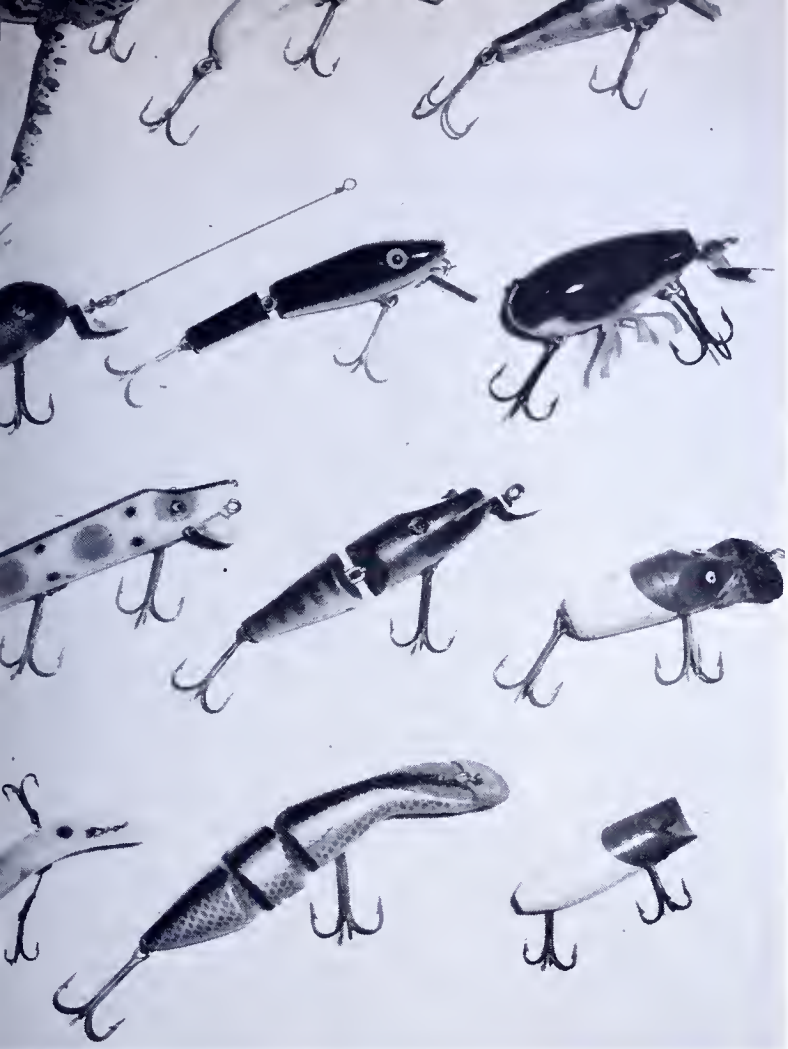
Photo quiz by
DON SHINER



▲ Photo No. 1

▼ Photo No. 2





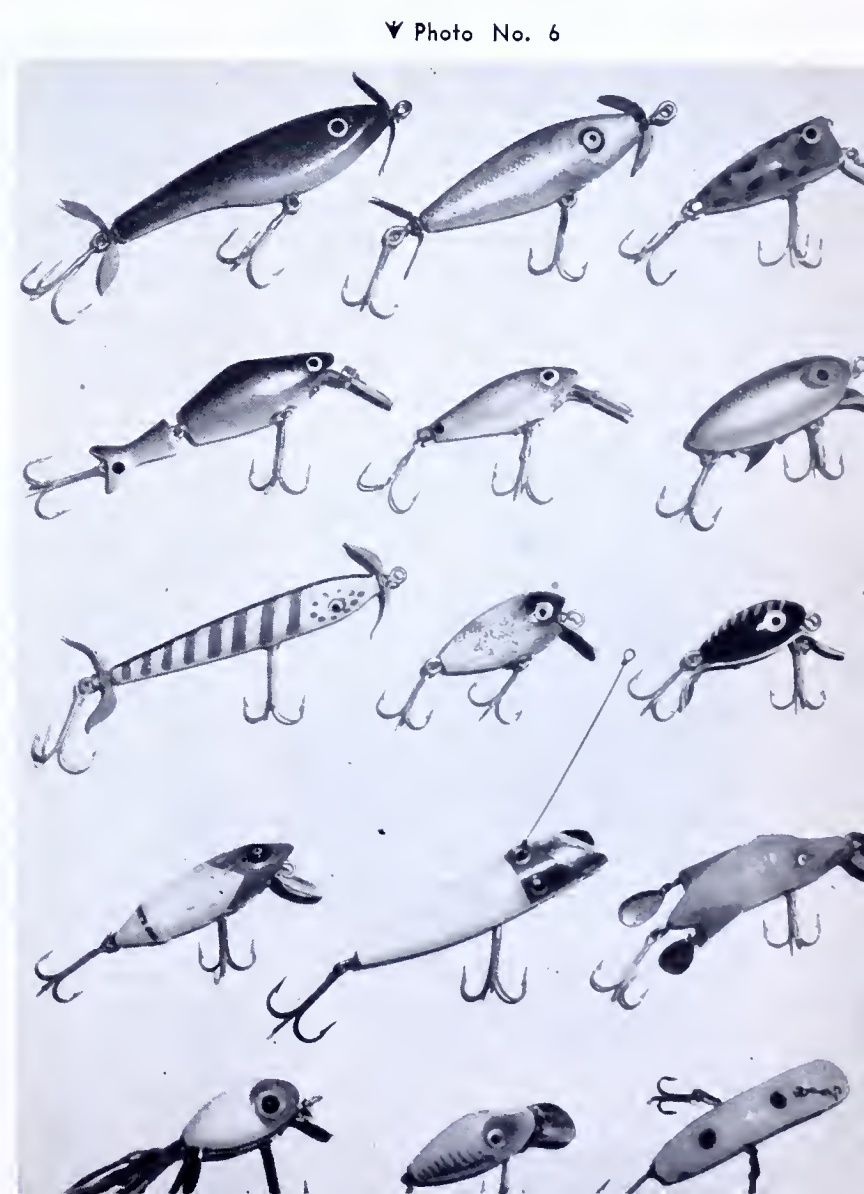
▲ Photo No. 3



▲ Photo No. 4



▼ Photo No. 5



▼ Photo No. 6

Hatchery Superintendents Attend Conference

The annual fish-cultural conference for hatchery superintendents, foremen and others of the Pennsylvania Fish Commission was held during the week of September 1-6, 1952. Twenty-one men attended the conference which was under the direction of Mr. C. R. Buller, Chief Fish Culturist.

The first day was devoted to a talk by Mr. Buller and an inspection of the Bellefonte Hatchery and the Benner Springs Project. The group then drove to the Pleasant Mount Hatchery where a day was spent on a tour of this plant and several large lakes nearby which are under the management of this hatchery.

Included in the itinerary this year were trips to the Hackettstown Hatchery in New Jersey, which is under the supervision of Mr. Charles Hayford, and to two private trout hatcheries in Pennsylvania—the Paradise Hatchery at Cresco, Monroe County, and the Kriss Pines Trout Hatchery at Lehigh-ton, Carbon County.

On the trip the group stopped at Milford, Pa., and renewed acquaintance with Mr. Frank Brink, one of the first fish wardens in northeastern Pennsylvania, now retired.

40 Pennsylvania Lakes Studied by Commission's Management Units

To date, the Commission's management unit has made intensive investigations of over 40 major Pennsylvania lakes. This program, which reaches its peak during the summer months, is actually a year 'round job. When the weather is too bad for outside work the biologists tackle the hardest job of all, i.e., compiling data, reading fish scales and writing management recommendations.

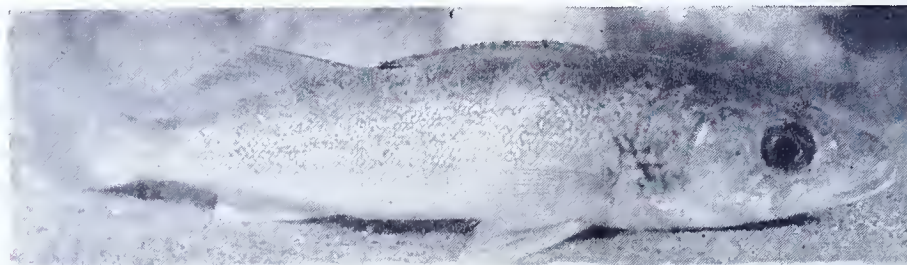
Stream surveys, conducted primarily to make stocking recommendations, continue throughout most of the year and this year their numbers will reach nearly a hundred.

Lake and pond reclamation work is being conducted in several areas of the state this fall with the assistance of crews from the state hatcheries. Under this program certain lakes which have been shown to have unbalanced fish populations are being drained and the fish removed. The lakes are then re-filled and restocked with suitable fish species.

W. W. Britton attends Enforcement Chief's Meeting

W. W. Britton, Chief Enforcement Officer, Pennsylvania Fish Commission, attended the Conservation Law Enforcement Chief's meeting on September 23 to 26. The organization comprises the New England states, New York, Delaware, New Jersey, Maryland, West Virginia and Pennsylvania.

Mr. Britton presented a paper at the meetings, "Typing the Violator and What We Can Do to Prevent Violations."



History of Fish Introductions In Pennsylvania

IV

The Yellow Pikeperch

The library of official records at the Bellefonte Research Laboratory again reveals the history of the distribution of another of Pennsylvania's game fishes—the yellow pikeperch or walleye pike.

In the early 1800's, the pikeperch was said to be very abundant in the Susquehanna River and its tributaries, so abundant in fact that the apprentices who worked on or near the river rejected it as food more than twice a week in their indentures.

Its introduction east of the Allegheny watershed and into the Susquehanna River system is based on the following story:

FISH MYTHOLOGY

How Long Does a Fish Live?

Since time immemorial this question was bandied about wherever fishermen assembled. Before the advent of the modern fishery biologist, the answer was probably supplied by anglers, from hearsay, with their usual tendencies to exaggerate.

If you are a fisherman and you have these tendencies to stretch the facts, you have undoubtedly received this trait honestly. To emphasize the point, we need only to discuss the ages of fishes.

Back in the eighteenth and nineteenth centuries, there were stories of carp and pike which reached the grand old age of 150 to 200 years. The story of the Emperor's Pike, printed by Gesner in 1558 and retold by J. R. Norman in "A History of Fishes," is worth repeating.

"The fish was said to have been captured in a lake in Württemberg in the

Shortly after the War of 1812, a Jesuit priest and an Englishman living on the banks of the Susquehanna, who had previously seen the walleyes in Seneca Lake, N. Y., conceived the idea of transplanting these fishes into the river near their home. Consequently, they journeyed to Lake Seneca and captured specimens which they took west in wooden barrels in an ox-cart to Elmira, N. Y., then known as Newton. Here they planted them in the Chemung River, a tributary to the North Branch of the Susquehanna.

It was only a few years later that the "fish clause" was entered in the contracts of the indentured servants. Since that time, the pike-perch, because of its spread throughout the Susquehanna River system, has been known as the Susquehanna Salmon.

KEEN BUSS, *Fishery Biologist*
Pennsylvania Fish Commission

year 1497, and was found to have a copper ring encircling the gill region bearing an inscription to the effect that the pike had been placed in the lake by the Emperor Frederick II in the year 1230—no less than two hundred and sixty-seven years before its final capture. The length was said to be nineteen feet and its weight five hundred and fifty pounds . . . The actual skeleton of the monster is reputed to be preserved in the cathedral at Mannheim; but this was studied by a celebrated German anatomist during the last century, who found that the vertebrae in the backbone were too numerous to belong to a single individual—in other words, that skeleton had been lengthened to fit the story!"

(Note by an angler's wife: It must have been mounted by a fisherman.)

KEEN BUSS, *Biologist*

Pennsylvania Fish Commission

Warden Long Aids Game Protector in Apprehending "Jacklighters"

Juniata County fish warden C. V. Long is the leading character in a colorful story showing what cooperation between officers of the Pennsylvania Fish and Game Commissions often accomplishes.

On the evening of September 25 officer Long responded to an urge, dressed in uniform and took to the road in search of "jacklighters." About 2:30 the following morning he heard two rifle shots, cautiously approached and located the gunner's position and saw a flashlight being played about in the woods, as done in searching for a dead deer.

When an auto took off nearby the officer surmised that a lookout had spotted him, and he gave chase in his car. After a short but hectic pursuit Long stopped the fleeing car in a race across an open field. He held the driver there.

The gunner and the spotlihter, whose identities Long had learned, did not appear in the next three hours. At 5:30 a.m. the fish warden took his catch to a nearby deputy game protector, Lamar Kline, with whom he has apprehended several game law violators in recent weeks. The district game protector, Owen E. Seelye, was called from his home at Port Royal.

The getaway car driver was arraigned before an East Waterford justice of the peace and warrants were issued for the shooter and the flashlight wielder. A fruitless call was made at their homes. Later, the men gave themselves up. The three men involved entered guilty pleas and were fined \$100 each for at-

tempting to take deer in closed season.

Game protector Seelye heaps praise on fish warden Long for his willing and able cooperation. Seelye's gratefulness suggests woe for fish law violators when the game protector can return the favor in kind.—*Weekly Newsletter*, Pennsylvania Game Commission

from a Warden's

— Notebook —

The month of September 1952 showed a large increase in the number of fishermen over September 1951. This is especially true with the woman anglers.—WILLIAM E. MCILNAY, *Warden*, Bedford County

Commercial fishing on Lake Erie has been very poor again this year. Smelt are on the increase in Lake Erie and may eventually be a real menace to the commercial industry.—S. CARLYLE SHELTON, *District Supervisor*, Northwestern District

On September 5, I checked a non-resident angler from Alabama with a non-resident license fishing Deer Lake. He was very much pleased with the set-up we have in our State as to the two different Commissions for Fish and Game. He also said that he fished in three different counties, was checked in every one, commenting that our en-

forcement officers are really on the job.—ANTHONY J. LECH, *Warden*, Schuylkill County

While assisting Arthur Bradford, Pathologist, Pennsylvania Fish Commission, on a stream survey, a Great Blue Heron was seen wading ahead of us. Along the bank of the stream a mother duck and her brood of fuzzy yellow ducklings were slowly making their way. The heron was keeping abreast of the ducklings, watching them very closely. Soon one fell behind a pace and the heron grabbed it in his beak. He then took off for a far corner of the pasture with the little duckling dangling from his long bill. The mother duck did not seem perturbed at the presence of the heron until it had taken the young duckling. Both Mr. Bradford and myself were surprised at this bold act of the heron.—ROBERT J. BIELO, *Warden*, Lancaster County



Meet two of the Pennsylvania Fish Commission's active wardens; on the left, Julius Ahrens, Venango County who has been with the Commission since August 15, 1937 and on the right, William E. McIlnay, Bedford County who became a warden on March 12, 1941.

PENNSYLVANIA FISH COMMISSION ADOPTS FISHING REGULATIONS FOR 1953

At the Annual Meeting of the Pennsylvania Fish Commission the following seasons, sizes, bag limits and special regulations governing fishing for the year 1953 in the inland waters, Lake Erie, Delaware River and Pymatuning Lake were adopted.

The season on Lake Trout was changed to April 15 beginning at 5 A.M. and extending to November 30 inclusive. ALL RESTRICTIONS WERE LIFTED ON CRAPPIE OR CALICO BASS, WHITE OR BLACK, IN ALL THE WATERS OF THE COMMONWEALTH.

Fishing Regulations — Inland Waters — 1953

Species	Season	Size	Number (One day)	Remarks
TROUT Brook Brown Rainbow	April 15 to July 31 Season opens 5 A.M., April 15	Not less than 6 inches	8 (Combined species)	Covers all species of trout except Lake or Salmon Trout
TROUT Lake or Salmon	April 15 to Nov. 30 Season opens 5 A.M., April 15	No size	8	
BASS Small and Large Mouth	July 1 to Nov. 30	Not less than 9 inches	6 (combined species)	
BASS White	Any time of year	No size	15	
BASS-ROCK Otherwise known as red-eye or goggle-eye	Any time of year	No size	15	
BASS Crappie or Calico, Black or White	Any time of year	No size	Unlimited	
PIKE PERCH	July 1 to Nov. 30	Not less than 12 inches	6	Otherwise called wall-eyed pike or Susquehanna Salmon
PICKEREL	July 1 to Nov. 30	Not less than 15 inches	6	
MUSKELLUNGE	July 1 to Nov. 30	Not less than 24 inches	2	
PIKE Great Northern	July 1 to Nov. 30	Not less than 16 inches	4	
YELLOW PERCH	Any time of year	No size	15	
SUNFISH-BLUEGILLS	Any time of year	No size	15 (combined species)	
CATFISH	Any time of year	No size	15	
SUCKERS	Any time of year	No size	15	
CHUBS	Any time of year	6 inches	15	* See note below
FALLFISH	Any time of year	No size	15	
CARP	Any time of year	No size	15	
EELS	Any time of year	No size	Unlimited	
FROGS	July 2 to Oct. 31 (Sunday excepted)	No size	15	Not more than 50 in any one season (frog and terrapin law, Sec. 1, 2, 3, 4)
TADPOLES	July 2 to Oct. 31 (Sunday excepted)	No size	15	
TERRAPIN (Red leg)	Nov. 2 to March 14	No size	5	Not more than 50 in any one season. All other turtles unprotected.
BA'T-FISH or FISH-BAIT	Any time of year	No size *	Bait-fish—35 Fish-bait—35 Combined—50	

(In the above mentioned seasons, both dates are inclusive.)

All fishing is prohibited in any waters from March 14th to April 15th except in rivers, lakes and ponds not stocked with trout. (All fishing is based on Eastern Standard Time)

* **SPECIAL NOTICE**—Under amendment to Fish Laws passed at 1951 Session of Legislature, chubs measuring less than six inches in length are now classified as bait-fish.

POSSESSION LIMIT—Fishermen in camp or returning from a several days fishing trip cannot have in possession more than one day's catch of any of the species or twenty-five of the combined species.

Explanation—You could not bring home or have in possession more than eight trout at any time.

TROLLING FROM MOTOR BOATS—Under resolution adopted by Commission, trolling from motor boats is permitted on all rivers, Conneaut Lake, Wallenpaupack Lake, Youghiogheny Dam and Pymatuning Lake from the main dam near Jamestown northwardly to the causeway at or near Espyville.

BURR HOOKS—The Commission considers a burr of three points as one hook, thereby permitting use of the plug bait with three burrs of three points each.

ROWING BOATS—To row boats for fishermen you must have a fishing license.

LAMPREY EELS CANNOT BE USED FOR BAIT IN ANY OF OUR INLAND WATERS—Every minnow box anchored in a stream, pond, lake or place of residence must have attached thereto the owner's name and address and fishing license number. If maintained by more than one person, it must be in sections and each section must have owner's name and address and license number.

Pennsylvania fishermen are also permitted to take bait on a fishing trip either within or without the State provided the possession limit is not exceeded and the bait are for his own use. If there is more than one fisherman, bait must be in separate containers or a divided minnow box or bucket.

No person or persons are permitted to bring bait-fish or fish-bait into Pennsylvania for resale without first securing a permit issued by the Pennsylvania Fish Commission, Harrisburg, Pennsylvania. In making a request for a permit, all persons must supply the Commission with name and address of the person or dealer from whom bait-fish or fish-bait are to be purchased, species of bait they desire to transport, number, place of business where fish will be resold, etc. Dealers must keep a record of all fish-bait or bait-fish purchased under their permit and copies of bill of sale to individual fishermen which must check with purchases made.

PENALTY FOR VIOLATION OF ABOVE—TWENTY DOLLARS, as provided for under Section 251 of the Act of May 2, 1925, P. L. 448, as amended.

FISHING REGULATIONS—PRESQUE ISLE BAY, LAGOONS AND PONDS—There shall be no seining from the shores of Presque Isle Bay or the shores of the lagoons and ponds—Permit to be issued for the use of seines not over twelve (12) feet in length for the taking of minnows from docks or boats.

There shall be no fishing permitted behind any of the restricted areas starting at the west boundary of the Erie Yacht Club around the entire shore line of Presque Isle Bay to the Perry Monument or any other posted area before June 15.

No. 2—Fishing Regulations—Delaware River above and below Trenton Falls—1953
By authority of the Act of May 2, 1925, P. L. 448, Section 251—Penalties for violation as provided by the Fish Laws.

Species	Season	Size	Number (One day)	Remarks
TROUT (All species)	April 15 to July 31	Not less than 6 inches	20 (combined species)	
BASS (Large and Small Mouth)	June 15 to Dec. 1	Not less than 9 inches	10 (combined species)	

PENNSYLVANIA FISH COMMISSION ADOPTS FISHING REGULATIONS FOR 1953

No. 2—Fishing Regulations—Delaware River above and below Trenton Falls—1953—(Continued)

Species	Season	Size	Number (One day)	Remarks
BASS Rock or Red-eye or goggle-eye	June 15 to Dec. 1	Not less than 6 inches	20	
BASS White	June 15 to Dec. 1	Not less than 6 inches	20	
BASS Crappie or calico, black or white	Any time of year	No size	Unlimited	
PIKE PERCH	June 15 to Dec. 1	Not less than 12 inches	10	Otherwise called wall-eyed pike or Susquehanna Sal- mon
PIKE	June 15 to Dec. 1	Not less than 12 inches	10	
PICKEREL	June 15 to Dec. 1	Not less than 12 inches	10	

(In the season as listed above, both dates are inclusive)

No. 3—Fishing Regulations—Delaware River Between Pennsylvania and New York—1953
By authority of the Act of May 2, 1925, P. L. 448—Penalties for violation as provided by the Fish Laws.

BASS (Large or Small Mouth)	July 1 to Nov. 30	Not less than 10 inches	6 (combined species)	
ROCK BASS	July 1 to Nov. 30	Not less than 6 inches	Unlimited	
TROUT (All species)	April 15 to Aug. 31	Not less than 7 inches	10 (combined species)	Species of trout, brook, brown, rainbow, steel- head and red throat
PIKE PERCH (Wall-eyed pike)	May 10 to March 1, next ensuing	Not less than 12 inches	15	
PICKEREL	May 1 in any year to March 1 of ensuing year	Not less than 12 inches	15	

(In the seasons as listed above, both dates are inclusive)

No. 4—Fishing Regulations—Lake Erie—1953—By authority of the Act of May 2, 1925, P. L. 448, Section 251.
Penalties for violation as provided by the Fish Laws. Presque Isle (Erie) Bay and Peninsular Waters.

Species	Season*	Size	Number (One day)	Remarks
BASS Large and Small Mouth	June 15 to Nov. 30	9 inches	6 (combined species)	
ROCK BASS	Any time of year	No size	15	Otherwise known as Red- eye or Goggle-eye
BASS Crappie or calico	Any time of year	No size	Unlimited	
PIKE Great Northern	June 15 to Nov. 30	12 inches	8	Known as Grass Pike
MUSKELLUNGE	June 15 to Nov. 30	Not less than 24 inches	2	
SUNFISH Bluegills (Bream)	Any time of year	No size	15 (combined species)	

(In the seasons as listed above, both dates are inclusive)

* SPECIAL NOTICE—All species not specifically mentioned in the above summary are classed as food fish and may be taken at any time of the year by approved legal devices.

REGULATIONS FOR TAKING SMELTS:

1. Waters affected: All streams emptying into Lake Erie, within the confines of Pennsylvania, from the mouth of the stream in a southerly direction to State Highway Route No. 5, which is a distance of approximately ½ mile.
2. Season: March 15th to May 31st, both dates inclusive.
3. Size: No size.
4. Number: Unlimited.
5. Devices: Only a dip net not over 20 inches in diameter or 20 inches square.
6. License: All persons coming within the provisions of the law to have the proper fishing license.

No. 5—Fishing Regulations—Pymatuning Lake—1953—By authority of the Act of May 2, 1925, P. L. 448, Section 251.
Penalties for violation as provided by the Fish Laws. Location: Between States of Pennsylvania and Ohio—Crawford County.

Species	Season	Minimum Legal Length in Inches	Number (One Day)
MUSKELLUNGE	July 1 to Nov. 30	30	2
PICKEREL	July 1 to Nov. 30	13	6
BLACK BASS	July 1 to Nov. 30	10	6
PIKE PERCH	July 1 to Nov. 30	13	6
SAUGER	No season	11	6
BLUE GILL OR SUNFISH	No season	No size	15 (combined species)
ROCK BASS	No season	No size	15
YELLOW PERCH	No season	No size	15
WHITE BASS	No season	No size	15
CRAPPIE OR CALICO	No season	No size	Unlimited
BLACK OR WHITE	No season	No size	15
CATFISH	No season	No size	15
SUCKERS	No season	No size	15
CARP	No season	No size	15
MINNOWS (2 rods and lines or 2 lines only)	No season	No size	35
FROGS (Unlawful to take frogs by use of a light)	July 2 to Oct. 31, inc. (Sunday excepted)	No size	25 in one day 50 in one season
TADPOLES	July 2 to Oct. 31, inc. (Sunday excepted)	No size	25 in one day or in possession at any one time.

(In the seasons as listed above, both dates are inclusive)

FISHING DEVICES—Two rods and lines or two lines allowed in possession.

DAILY CREEL LIMIT—Twenty-five of the combined species.

POSSESSION LIMIT—Not over twenty-five fish of the combined species in possession at any time.

All of the foregoing under Resolution No. 22, setting up open seasons, size, creel limits, and regulations for 1953 were adopted by the Pennsylvania Fish Commission July 1, 1952.

FISH MANAGEMENT PROGRESS (From Page 12)

Waters and the Pennsylvania Game Commission have been very active in the dam building program. And thanks to interdepartmental cooperation these lakes have been turned over to us for fish management. The same may be said of the federal flood control reservoirs. The Fish Commission, using Dingell-Johnson funds, is now building fishing lakes where they are most needed in Pennsylvania. During the past three years there has been a gain of more than 8,000 acres of warm-water fishing areas. Under wise management these new waters are bound to increase the fishing pleasure of our people.

2. *There will be a regular system of lake reclamation.* This will include the transfer of fish from one lake to another. Trained crews will drain and poison lakes and set them up anew when needed. Undoubtedly, this will be one of the most productive measures of fish management.

3. *There will be more lakes stocked with trout.* Some lakes now holding slow-growing populations of warm-water species might better be converted to trout if conditions suitable to trout are found. This will make for more diversified lake fishing.

4. *There will be more fishing in*

water supply lakes. There are in the Commonwealth today numerous instances in which fishing is permitted in reservoirs used for drinking water. With proper precautions, there is little reason why many more lakes can not be opened to fishing. We can fish a lake and drink it too!

5. *Restrictions or liberalizations on fish and fishing will be written to suit one lake rather than a single blanket law for all lakes.* Since lakes vary so greatly in fish populations, proper management calls for individual treatment.

We trust that our fishermen will accept these new measures as progressive steps toward better fishing in Pennsylvania.

RELIGION IN THE ROUGH (From Page 19)

trout, rainbow trout, muskellunge, largemouth bass, smallmouth bass and walleye were taken on artificials. Only the prize winners in the brook trout, northern pike and pickerel divisions succumbed to minnows.

But, of the prize winners in the game fish division, this was the score for artificials as opposed to live bait: Lake trout, 16-2; brookies, 6-10, (but only three on minnows, the rest on grasshoppers and worms); brownies, 14-4, (none on minnows); rainbows, 17-1, (the one on worms); muskellunge, 10-2; largemouths, 10-6; smallmouths, 7-8; northerns, 13-5; walleyes, 13-5; pickerel, 7-11.

This should convince any angler who has never used an artificial lure that their sport is equally good with the make-believes. But, whatever your choice of lures . . .

Take nothing for bait that Nature needs.

Experience in all things has proven to all men that among us are those who will never play any game fairly. However, we as individuals must continue to paddle our own canoe without splashing the other fellow.

There are many times when out fishing situations arise which call for courtesy.

A gentleman is defined as a well-bred and honorable man. Since actions of the individual establish all that is needed to denote breeding, honor becomes a natural product for the considerate person. This holds true along the street or along the stream.

The fellow working a pool with dry fly should expect that other anglers will respect his privacy and move quietly around him without disturbing the fish. A man who has found a spot where the fish are taking his worms well should have no fear of being crowded by those fishing nearby who are less fortunate.

A boat resting in a bay where an angler is trying his luck should rock very little from the passing of another outboard. Or, a fisherman casting the shoreline may expect that an approaching boat will give him a wide berth before pulling back toward shore.

No one should have the worry that another man with a fishing rod will come wading down the middle of the stream.

Yet, every year that you have fished you have found some of these faults in other anglers. There may have been times when you became so disgusted that you reciprocated in self defense.

You have come upon spots that were littered with paper and fruit skins, with beer cans and empty jars, where anglers ate their lunches. You have seen cars parked across farmers' lanes, gates left open so that cows strayed from the pasture, fires left burning where they threatened woodland and the farmers' crops.

Not always have these things been done maliciously. Many anglers are unable to get to their fishing often. Few have been trained to do things the right way. They are more frequently careless than mean or nasty.

If you berate them noisily, they will reply in kind, and the only result will be bad feelings and a nasty argument. Or, if you take a superior air and talk down to them for their faults, they will resent it.

However, if you speak to the average fellow kindly and explain in a friendly spirit how he annoyed you, he will likely become embarrassed and remember it for a long time. Further, he will likely learn from the experience.

Yes, it is difficult to maintain an even temper after you have been offended. But, if you want to consider yourself a sportsman, remember that the title carries with it a weighty responsibility. So . . .

Respect the other angler and earn his respect.

The last rule for angling is identical



to the best rule for any outdoor sport. It is not unnecessary repetition, because it is so important. It pertains to the laws.

For, even if you insisted on always taking full advantage of the laws in the area in which you fished, you would never hurt your sport appreciably. If the pressure on the fish became too great, those guardians of your sport who make the laws would soon reduce the limits, or they would shorten the seasons.

Again, the fishing laws may sometimes seem harsh or trifling. But it is the rare case when a law is detrimental to the sport in the long run. Practically all laws pertaining to fishing are more inclined to liberality than otherwise. Pressure from the sportsmen themselves sometimes prevents legislators

from passing laws which would eventually improve the sport.

Where the fishing pressure is the greatest we usually find the most regulations. This is in itself evidence of the need for laws.

Conscious breaking of any law carries a tinge that is unsportsmanlike. If you feel uncomfortable committing any act for which you might be called to account, you are wrong.

So, our last rule of angling ethics is simply, but emphatically,

Obey the laws.

The list of rules in our code is short. But the import behind them is far-reaching.

If, when out along the stream or lake, you apply one of these rules to any situation which might arise, you will find that your conscience will supply

any details which are missing.

This writer would be the last to lay claim to a perfect record based on this code. But I share the effort with those who are sincerely determined to elevate the sport of fishing to the high plane which it deserves.

The necessity for closer adherence to a code is dictated by the increasing number of anglers. I believe that those who follow these rules of ethics will contribute much toward improving and maintaining fishing as a sport.

1. Feast on your sport, but carry a light creel.
2. To catch more, kill less.
3. Take nothing for bait that Nature needs.
4. Respect the other angler and earn his respect.
5. Obey the laws.

Selecting Spinning Lures

(From Page 21)

difficult to make any wobbler hook weedless with a coil of very fine stainless steel leader wire and a pair of pliers.

We need not become perplexed with the great variety of plugs if we confine selections to the proper weight and buy at least one of the three leading types; a top-water popper like the Phillips "Weedless Popper" illustrated, a floating-diving plug, and an underwater deep running model. James Heddon's Sons has solved this problem nicely by offering their "Tiny Trio," which consists of one each of the three types.

Few experienced anglers would fail to include Charlie Helin's famous "Flatfish," which is in a special class entirely. I shall not venture to recommend color combinations, but will say that his models "F7" and "X4" are awfully good for fresh water spinning (with a split shot or two on the line to aid in casting and to keep the lure under the surface).

I've grown a bit allergic to weighted streamer flies or bucktails. It is hard to make them "act alive" in slack water, and in fast water I think the spinners and wobblers are much more effective. When using flies or tiny baits, I prefer them unweighted, and I cast them with the popular "Buldo" plastic ball float, as discussed in the September issue of this magazine.

Lately, the little jig type lures which always have been popular in salt water have been found very effective in fresh

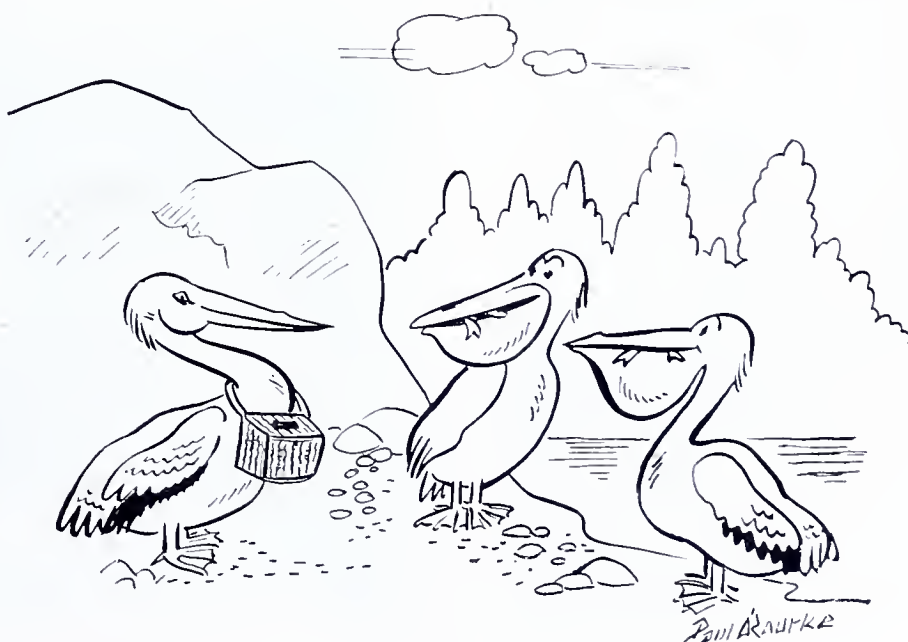
water also. Among the better ones are the Barracuda "Baby Dude" and Pennsylvania's pride, the Pequea "Quilby Minnow."

This (I hope not too briefly) covers the basic necessities and near-necessities of fresh water spinning lures. Two dozen lures, carefully selected for purpose rather than for appearance, should cover requirements in any waters and for any fish. The illustrations accompanying this article provide a more-than-adequate assortment of universal favorites. Trout fishermen can eliminate some, and bass fishermen can eliminate others. A tackle box containing all of them appears to be an ideal collection. In presenting it, I

should say that there are many similar lures which are equally as good, or very nearly so.

Last winter I weeded out my tackle box, after realizing that I was toting around a great many lures which never were used. This year, only a couple of dozen carefully chosen ones have filled the bill admirably—and I never since have felt the need for any more. If the fish won't take any of these tried-and-true varieties, it is a safe bet that they are not in the market for artificials of any type.

Buying unnecessary lures is a needless expense. To avoid it, start with a few well-recommended examples of each of the basic types which we have discussed—and let common sense and local fishing requirements carry on from there.



The Editor's Angle

BETHLEHEM, PA.

Dear Editor:

The recent release to newspapers concerning the use of spinners with trailing worms interests me very much. It is not only my favorite lure, it comes near being my only lure for lake and pond fishing. My summer months are spent in studies of lakes and streams with the objective of improving fishing. Nets, seines, dredges, chemical equipment, etc. of course play an indispensable part in such work but I do not feel that I know a lake or pond well unless I fish it as other anglers fish it. So I do a lot of fishing and my lake and pond tackle consists of a spinning rod and a medium sized Junebug type spinner. I put one on July 1st and use it until I lose it or it gets so battered that it no longer spins then I put on another. Four or five of them last the whole season while my friends spend time changing lures I keep on fishing. This rig seems to take fish at about the same rate as any other when they are taking any lures at all.

There is an additional advantage of the spinner-worm combination, the variety of fish it takes. It, of course, is a killer for pickerel and nearly as fatal for large and smallmouth bass. I have also taken wall-eyes, yellow perch, white perch, common sunfish, red-bellied sunfish, bluegills, rock bass, black crappie, fallfish, brook, brown and rainbow trout and occasionally even bullheads. Many of our lakes and ponds suffer from too selective fishing. With the average modern fisherman plugging for all he is worth for big game fish and with too small a number of natural predators left on the waters the spiny-rayed panfish (most of them named above) have too good a chance of survival. They become too abundant, often become stunted and compete too severely with the game species. I do not contend that using small spinners and worms is going to correct this condition but it would help. It would make the predation done by fishermen copy more closely the overall predation which occurs in nature. Also it is lively fishing. Why go home fishless, when bass aren't striking. Take home a good string of bluegills, perch and crappie. They are better food fish anyway and you will

The ANGLER has turned over these several pages to our readers. The editor invites letters, comments and discussions on any angling subject. Send along any ideas on gadgets or tackle, observations on odd happenings. If you desire the ANGLER to run an article on any outdoor subject make your requests known. We shall do our best to comply with your wishes. The editor reserves the right to edit all inquiries and letters to conform with format of the magazine.

have the satisfaction of actually bettering fishing by fishing.

One objection to using spinners with a spinning rig is that they tend to twist the line and also they often tangle. The Junebug type of spinner, spinning on its own piano wire axis does not twist the line very much. A light plastic keel in front of the spinner seems to stop all line twisting. The tendency of the hooks to tangle in the line while casting can be done away with entirely. Use two hooks in back of the spinner a short shanked, small hook and a larger very long shanked hook. The smaller hook may be either a single or treble. I don't notice any difference in their ability to catch fish. Clamp a large splitshot sinker to the upper part of the shank of the larger hook. This sinker makes all the difference between a tangle on about every third or fourth cast and practically no tangles at all. Hook a big worm on both the small and large hooks. Many fish, especially the panfish, are likely to strike at the trailing worm and not be taken with the usual small single or treble hook. The long shanked hook gets them. Most fish taken will be hooked by the long shanked hook alone which is convenient when you wish to release undersize fish or any game fish you do not want. Leave them in the water until thoroughly tired out. Grasp the hook shank with a pair of long-nosed, radio repairman's pliers. Usually one quick twist will release the fish unharmed.

Dr. Francis J. Trembley,
Department of Biology
Lehigh University

Dr. Trembley refers to the following Press Release issued by Division of Public Relations, Pennsylvania Fish Commission.

Spinner and Worm Combination

Worms are excellent as trailer baits on spinners. There is something about the flash of a revolving spinner blade and

worm weaving rhythmically behind, that causes many sizeable fish to forget all caution and dart instantly after it—declares the PENNSYLVANIA ANGLER, official monthly magazine published by the Pennsylvania Fish Commission.

The technique in using this combination is the same as when fishing any spoon or plug. Retrieve just fast enough to make the blade revolve. Some spinners require the retrieve to be fairly fast, others need only a slow pull. Often one type is successful when the other fails, thus, the angler should include both types in his tackle kit.

The worm and spinner is rather light in weight so to do a good job of casting you need fine equipment. The rod should be fairly light in action, the reel should run extremely free, otherwise the worm will be torn from the hook during the cast. The spinning reel is excellent for this spinner and bait combination.

Using a fly rod to cast this 'rig' is another good method. Or, if either method fails to produce expected results, try trolling. This is an excellent way of fishing as the bait and lure is in the water continuously, compare this to casting, here nearly a third of the time is spent selecting a likely spot and then making the cast.

Which ever method appeals to you, you can feel assured that it will take fish. Often the whirl and sparkle of a revolving blade with a wiggling worm trailing behind lures more fish into striking than either a spinner or worm used alone.



Dear Editor:

Enclosed is a photo of my friend Bill Slabinski of South Wilkes-Barre, Pa., with a walleye he caught in Harveys' Lake. The fish is 31 inches long, weighed 10 pounds, 3 ounces and 17 inches in girth. I would appreciate it very much if you published the picture in the ANGLER.

DAN VARCHOL.

Wilkes-Barre, Pa.

PENNSYLVANIA—ANGLER

CARP-CATFISH BAITS

Let's go! . . . you carp and catfish experts! Unlimber those favorite secret concoctions, let us all in on the know how! We'll publish your favorite recipe in the Angler if you'll send your specific ingredients and directions to the Editor, 1339 East Philadelphia Street, York, Pennsylvania.

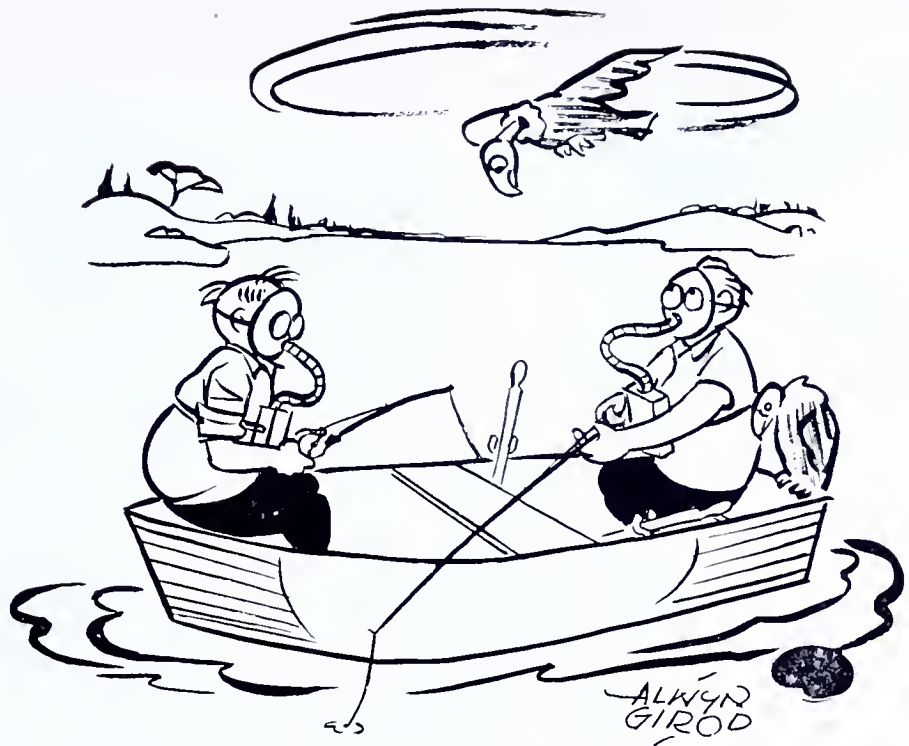
THE IMPORTANCE OF LITTLE THINGS

By DOROTHY M. HERR

LITTLE things have a way of often leading to bigger things. They are sometimes responsible for bringing about startling results which can be worthwhile and lasting. It is doubtful if any of the many boys and girls who attend Nature Study classes in the public schools of Pennsylvania know about the little thing which had a great deal to do with making these classes a part of their prescribed studies.

One day several years ago, A. A. Zecher, a sportsman of Lititz, Pa., was delivering a picture he had tinted for a friend. As far as he was concerned it was just another picture, not too good and not too bad. Both the subject matter and the story behind it were a bit unusual but not so much so as to be sensational. However, Mr. Zecher did think it might interest the principal of the local school whom he met en-route. The principal was interested. He suggested that the Lititz Sportsman's Association send someone to the school to tell the story and thereby arouse interest among the pupils in the conservation of wild life. So a project was born!

Representing the Sportsman's Association Mr. Zecher went to school and told the children about Bobby, the robin, and his friend, the Naturalist. It seems, that when Bobby was too young to walk or fly and was covered only with pinfeathers, a marauding red squirrel pushed him out of the family nest which was in a tree in the Naturalist's garden. Luckily for him the Naturalist found him almost at once. He cared for the now motherless



"Best catfish bait I ever cooked up!"

baby robin and gave him the name of "Bobby." In no time at all Bobby learned to eat bread crumbs, cut up worms and hamburger from his benefactor's hand. Each night the Naturalist put Bobby on a limb of a tree. This was done to teach him his way of life and to harden him to the elements. Bobby was an apt pupil; he learned his name and to come when called and in due time he learned to fly. Fall came; Bobby migrated with the other robins. Spring returned and with it came a full-grown robin which was quite at home in the Naturalist's garden. It was Bobby—he had come back!



The "not too good" picture which started a very worthwhile project.

The boys and girls liked this story. They wanted to hear more. Consequently the Education Committee of the Lititz Sportsman's Association selected several men who knew and studied bird and animal life and sent them to the school to give talks. Word of this new project got around; other schools in the district wanted to have talks on wild life too. So what started as a little thing began to grow until the children in some 20 schools in and outside the district were looking forward to talks on Wild Life Conservation. Teachers reported that these programs were worth more to the children than any text book they had on hand. The programs the Committee presented included talks on song and insectivorous birds. They started out with one mounted specimen—an owl; then a local taxidermist presented the Association with 64 mounted specimens of birds and animals.

Soon this project grew to be such an overwhelming thing that the Committee had to confine its efforts to its own district. Realizing that what had been started should by all means be continued they took their problem to the County Federation. As the result of this appeal the project was taken over by the state. Today Nature Study is a part of the curriculum of the public school system of the State of Pennsylvania—the far reaching result of an almost insignificant little thing, a picture which was not too good nor too bad.

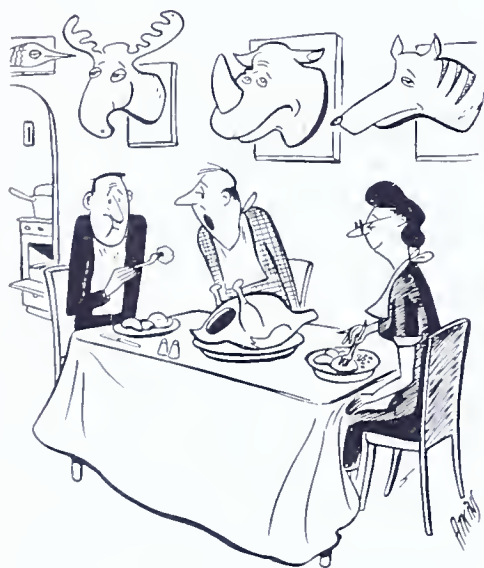


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"Her filling isn't so hot since she took up taxidermy!"

ANSWERS TO PLUG AND LURE QUIZ ON PAGES 22 AND 23

Photo 1—SPOONS. (Reading down column)

Column 1: Tony Accetta Weed-Dodger, Williams Spoon, Eppinger Dardevle (scale finish), Eppinger Dardevle (red & white), Hofschneider Red-eye Wiggler.
Column 2: Hildebrant Pearl Wobbler, Johnson Sprite, South Bend Trix-Oreno, Tony Accetta Pet Spoon, Tony Accetta Spin-Dodger, Paul Bunyan Flash-eye.

Photo 2—SURFACE LURES. (Reading left to right)

Row 1: Shakespeare Mouse, South Bend Nip-i-Diddee, Phillip's Crippled Killer, Arbogast Jitterbug (3/8 oz.), Jitterbug (5/8 oz.) size.
Row 2: Tony Accetta Jugglet, Creek Chub Plunker, Creek Chub Darter, Surface Frog, Pflueger Globe.

Photo 3—FLOATING-DIVING LURES. (Reading left to right)

Row 1: Paw-Paw Frog, South Bend Tease Oreno, Pflueger Pal-O-Mine.
Row 2: Creek Chub Ding Bat, L & S Catfish, Creek Chub Crab.
Row 3: Heddon Vamp, Creek Chub Jointed Pike Minnow, South-Bend Dive Oreno.
Row 4: Helin Flatfish, Heddon Vamp, South Bend Bass Oreno.

Photo 4—Reading left to right:

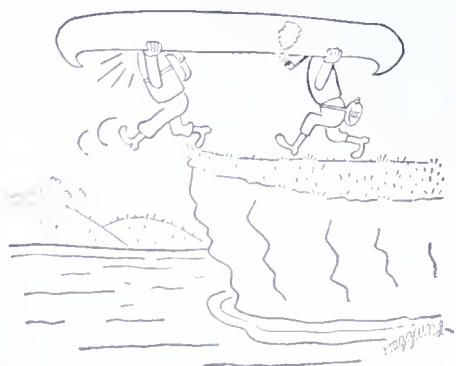
- | | |
|---|----------------------------|
| 1. Heddon Tiny Torpedo | 10. Marathon Spinner & fly |
| 2. & 3. Arbogast Hawaiian Wigglers | 11. Airex Peska Perche |
| 4. & 5. Airex Spinners | 12. Flatfish |
| 6. Heddon Tiny Lucky 13 | 13. Williams Wobbler |
| 7. Tony Accetta Pet Spoon | 14. Philip's Devon Minnow |
| 8. Hildebrant Double-spinner & bucktail | 15. Eppinger Dardevle Imp |
| 9. Paul Bunyan Lucky 66 | |

Photo 5—SPINNERS AND SPINNER & FLY COMBINATIONS. (Reading top downward)

- Top center: Marathon Spinner & fly.
Row 2: Arbogast Hawaiian Wiggler, Halley Spinner.
Row 3: Hildebrant Slim-Eli spinner, Pflueger Pear-shaped spinner and fly.
Row 4: Double June-bug spinner, Single June-bug spinner.
Row 5: Paul Bunyan Lucky 66, Skinner Fluted Spinner.
Row 6: Paul Bunyan Lucky 66, Worth Double blade spinner.

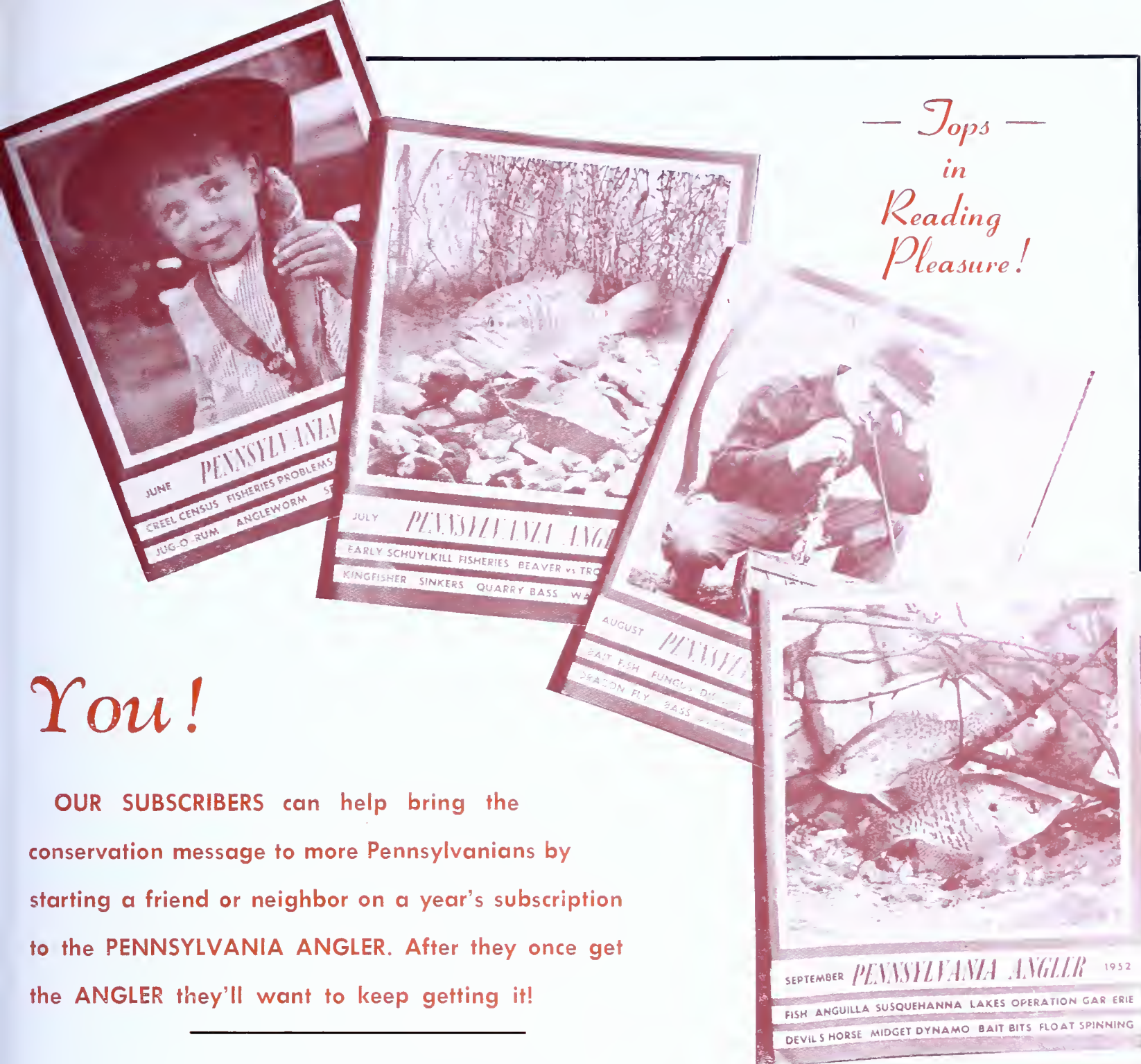
Photo 6—SINKING, DEEP RUNNING LURES. (Reading left to right)

- Row 1: Shiner, Florida Shiner, Wood's Dipsey Doodle.
Row 2: Wood's Spot Tail Minnow, Wood's Minnow, Clark Water Scout.
Row 3: Dillinger, Shakespeare Gumpy and Dopey.
Row 4: South Bend Fish-o-Bite, South Bend Deep-Oreno, Shannon Wig-I-Twin.
Row 5: Arbogast Hula Dancer, Heddon Midget River Runt, Helin Flatfish.



"... about 20 more steps, if my calculations prove correct, we'll come to the river—"

— *Tops* —
in
*Reading
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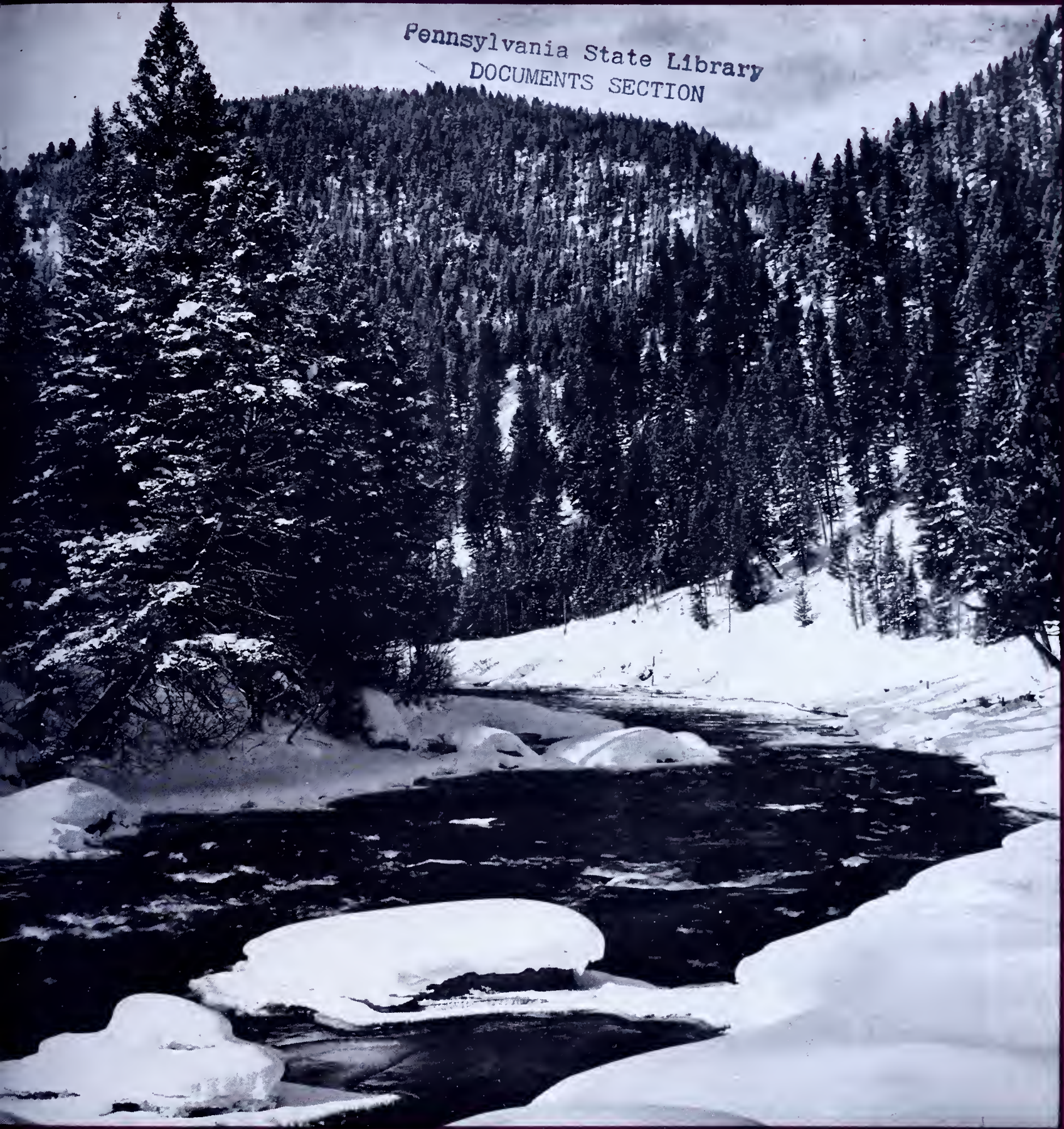
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J. Allen Barrett—Director Division of Public Relations

DECEMBER—1952

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THE COVER . . . WINTER ushers in the HOLIDAY SEASON when rod and gun are carefully stored and dreams are made around the comfortable hearth of home.

Photo by Josef Muench

BACK COVER—

Silent grandeur of the outdoors is disturbed only by the gentle song of the snow-lined brook journeying to the sea.

Photo Ewing Galloway, N. Y.



George W. Forrest, Editor

1339 East Philadelphia Street, York, Pa.

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ICE FISHING

in *Presque Isle Bay* on *Lake Erie*

PRESQUE Isle Bay is Pennsylvania's only natural port on Lake Erie. For many years this protected body of water was the site of the remains of the "Niagara," a famous ship which took part in the Battle of Lake Erie. It was from Presque Isle that the "Niagara" was originally launched. Many will recall from history that the "Niagara" was the ship to which Admiral Perry transferred after the "Lawrence," his own ship, had been badly raked by British fire. These, too, were the waters in which, from early days, fish were caught in great numbers, probably first by the Eriez Indians.

At its widest point Presque Isle is about two miles across and stretches approximately five miles in length. This bay is formed by a peninsula, Presque Isle, which extends out into Lake Erie from the mainland on the west. Then, returning, it nearly touches the mainland on the east.

This body of water affords a year

By **ALFRED LARSEN**

Fishery Biologist

Erie State Fish Hatchery, Pennsylvania Fish Commission

round sports' haven, not only for the people of Erie and of Erie County, but also for fishing enthusiasts who are frequent visitors from a tri-state area. While fishing in the bay is perhaps at its height during the spring, summer and early fall months, ice fishing is drawing ever-increasing numbers of sportsmen to the spot. Both ice boating and skating have their backers, but ice fishing has proven to be far the most popular of the lake's winter-time activities. In times past, the usual quota of dyed-in-the-wool ice fishermen could be seen plying their art on the coldest of days. More recently, as the fame of the fine catches waiting for the hook has spread, they have been joined by more and more out-

of-town Izaak Waltons. Talk of the excellent fishing to be found in the bay's waters is reaching many an interested ear and has proved to be an irresistible lure.

Once the ice begins to form on Presque Isle waters it thickens under the watchful eyes of those impatient to don their warm fishing togs, chop a hole in the ice and let down a line. Soon after this takes place yellow perch (*Perca flavescens*), crappies (*Pomoxis annularis-pomoxis nigromaculatus*), and yellow pikeperch (*Stizostedion v. vitreum*) are being pulled up in rewarding numbers. Of these three species, the yellow perch, which is a frequent summertime catch, is by far the most frequent. It is the

An estimated 1,000 pounds of yellow perch were taken by these ice fishermen on Presque Isle Bay.



abundant numbers of this member of the finny tribe in the bay which have given greatest impetus to the popularity of ice fishing as a winter sport. The size of the yellow perch caught averages seven to eight inches in length and it is not uncommon that they scale from one to one and one-quarter pounds.

Ice fishing begins with the first "good ice," although there are always a few persistent "professionals"—or fool-hardies, if you will—who venture out when the ice is barely on (two inches or less in thickness). Generally, large numbers of fishermen are to be found when the ice becomes four inches thick or better. Information on ice conditions is issued by the Pennsylvania Park Police and the local Coast Guard Station and is available upon request. We cannot stress too strongly that it is always good policy to check with one of these two agencies before going out on the ice. Once having established that the time is right, the would-be fisherman has only to get his gear together and take off on the excursion. The fisherman's equipment is generally hauled over the ice by means of a sled which, incidentally, will serve as a good seat during fishing. A complete survey of the pieces of equipment in use would show everything from a "cord and a bent pin" type to the best in nylon lines. However, there are a few useful items which may stand as most practical. A silk or nylon line is usually used in preference to a heavier material which tends to become stiff and unworkable under freezing conditions.

Both hand poles and trip-ups are in evidence, the former being more frequent in use than the latter. Hand-poles can be purchased at sports stores,

but are not too difficult to make. A discarded band saw blade, a broken casting rod tip, or similar material inserted in a wooden handle forms the essential part of a handpole.

A spud for chipping holes in the ice will be needed. The spud is simply a large chisel head or a piece of sharpened metal attached to a four- or five-foot handle. Such an instrument also has another functional purpose since it is useful in making one's way across the ice. By simply prodding the ice ahead of his step, the fisherman can readily detect and avoid bad or thin ice. Most experienced ice fishermen favor the use of this piece of equipment.

Ice creepers, or toothed pieces of

metal, fitted on the bottom of the boots worn by the fishermen are much in evidence. Actually, they are almost a "must" as they can prevent nasty falls. They also provide practically the only means for making any headway in walking when a strong wind is blowing. On the ice flats a strong wind can easily take possession of the unwary fisherman, since from thirty to forty mile winds are often encountered. Local ice anglers often remind each other of the time one of their number slipped to a sitting position and was propelled by the wind nearly half the width of the bay before he could get up. At the end of this "seat skate" his fishing pants and underclothes were worn completely through and a layer



Comfort and a nice catch!

Two fishermen sit near their cheery home-made stove. Lunch box waits within arm's length in background. Shelter is of pole and blanket arrangement.





This well-bundled youngster who came along just for the ride helps Dad with the equipment.



A typical shelter of the canvas and pole type. Note the light equipment sled being used as a seat by the younger of the fishermen. The handpole, such as those at the left, is commonly used for ice fishing.



or so of skin was missing. Over a week's recovery time provided ample opportunity for musing on the expediency of using ice creepers.

The clothing selected by the fishermen varies according to the fortitude of the individual but "long handles" are generally acknowledged as basic equipment. Heavy pants, wool shirts or sweaters "to taste" and a sturdy jacket compose the outer layers of the fisherman's habit.

Windbreaks are commonly used as protection from the elements, especially when a cold wind is blowing. Without some sort of shelter ice fishing can become an endurance contest rather than a pleasure. The shelter most often used is the canvas and poles combination. It is relatively easy to carry and its simplicity of erection is also in its favor. However, shelters are by no means limited to this particular style and everything from tents or old blankets to small plywood shanties are in evidence.

A great many stoves are to be found among the ice fishermen and they are usually of the coal or charcoal variety. These small stoves are used not only to give warmth but also for the preparation of meals. For the fisherman, mealtime may come during a brief lull between flurries of catching fish or when hunger is given an added push by the invigorating air. Often one is led to a particular shelter by following the "aroma beam" of a sizzling T-bone or a pan of freshly-caught fish. A former warden claims

to have picked up the scent of a char-coaled T-bone and to have followed it nearly the width of the bay. (P. S. He got a steak.)

Though it is not to be encouraged, there are always those who insist upon fishing before the ice conditions are entirely safe. Their chances of the cold-water treatment at from 34 to 36 degrees are excellent. From them we learn that boards or shortened ice picks can be good emergency items. The boards are used for crossing cracks or bad ice and are effective in distributing the fisherman's weight over a greater area. Should one be so unfortunate as to actually fall through some bad ice, the ice picks come into play. They are quickly grasped—one in each hand—and will, it is hoped, provide enough leverage for the fellow to pull himself out of a mighty poor predicament. Ice fishing under such conditions is definitely not recommended and these types of equipment are mentioned only that they may be kept in mind for any emergency.

Wherever fishing is the topic of conversation the discussion inevitably turns to bait. Ice fishermen, too, have their favorites. The bait most commonly used is the River Emerald Shiner (*Notropis atherinoides atherinoides*). This is the greatest producer of catches. This River Emerald Shiner is a minnow which is abundant in both the bay and the lake, and it can be obtained from local bait stands located at the waterfront. Seed pods taken from goldenrod are occasionally opened and the grubs found inside are used as a bait variation. Some fishermen also claim to have caught fish on a trout fly dangled through the ice. Here, as always, man's ingenuity seems to be the only real limit on finding new ways to attract the aquatic inhabitants.

In addition to the sports fishermen there are some who make a winter business of ice fishing. Their catch is sold to the local commercial houses. It is not at all unusual for these practiced anglers to catch from ten to twenty-five pounds of perch per out-

can fish see

COLOR?

By PAUL M. HURST, JR.

Graduate Student, Department of Psychology
The Pennsylvania State College
State College, Pennsylvania

THE problem of color vision in game fishes is obviously a critical one for the user of artificial lures. The (at present) controversial status of this problem is due in most part to a difficulty inherent in any color vision study with animals: how can we be sure that the animal is responding to differences in color and not differences in intensity (brightness)? In the study just completed by the author at the Pennsylvania State College under the direction of Dr. William Lepley and with the cooperation of the Pennsylvania Fish Commission, Fisheries Research Laboratory, Bellfonte, Pennsylvania, an attempt was made to measure responses to color regardless of intensity.

The subjects of this experiment were *Lepomis macrochirus*, the bluegill sunfish. As any warm-water fisherman knows, this fish is closely related to the black bass so that results obtained on the bluegill could be generalized to the bass with high confidence.

The bluegills were kept in a fifty-gallon glass aquarium with an open wire box at each end. At feeding time, the lights in the room were extinguished and a beam of colored light was shot into each food box, one of red light, one of green. If a fish went into the box with the red illumination, he was fed a worm and the lights were turned out; if he went into the box with the green light, he was not fed and the lights were turned out. The lights were alternated randomly—sometimes the right-hand box got the red; sometimes, the green. The intensity factor was controlled by first equating the physical intensities of the two filters with a photometer. Then, because physical intensity does not necessarily correspond to biological intensity (that is, green may look much brighter than red of the same physical

intensity to an animal which is completely color-blind), the intensities of both the red and the green were varied over a range of from one- to forty-five-foot candles. Thus, sometimes the red was as much as forty-five times as bright as the green, and sometimes vice versa. If the fish could tell the difference between the two lights, they must do so on the basis of wave length (color) alone.

Would the bluegills discriminate? They did. After one hundred practice trials, the bluegills chose red over green in a ratio of 94/7 in a series of 101 test trials.

Only one test remained to assure that the intensity factor had been ruled out. For this, two white filters were prepared so that instead of the red and green two white lights of varying intensity could be shot through the food boxes. If the fish were truly responding to differences in color and not in intensity, it would be predicted that they now either would not enter the food boxes at all or else would respond randomly—now going to the more highly illuminated box, now to the less illuminated one. They did respond randomly (16/12) in favor of the less illuminated, with two non-response trials.

On theoretical grounds, it seems highly likely that an animal with red-green color vision can discriminate the whole human spectrum, and possibly more. Red-green vision is seen as the last to develop as we go from the lower to the higher animals. So, unless some reader can pick out a flaw in this experiment, it can make a difference what color plug you lay alongside that lily pad or flick to the old log by the edge of the current. If that bass wants a fuschia-colored popper, you'd better have one!



What can fish hear?

NOTHING, says one fisherman; heavy vibrations from footsteps, says another; even your voice, says a third. What does science have to say about it . . . ? The answers again run the length of the scale. Many early investigators reported that fish could hear voices, ringing bells, whistles, gunshots, etc. Later investigators reported most species to be incapable of hearing anything. All of these studies lacked the modern equipment now available and most of them had failed to control such variables as intensity of the sound, sight of food or experimenter, etc. Even the best work, which proved that some species could hear certain sounds, was done without modern equipment.

In the present study, which was done in the summer of 1952 at The Pennsylvania State College under the supervision of Dr. William Lepley, modern acoustical equipment was used in an attempt to settle the argument. The study was made possible through the cooperation and help of the Pennsylvania Fish Commission through their Fisheries Research Laboratory at Bellefonte, Pa.

The fish used were bluegill sunfish (*Lepomis machrochirus*). These were chosen because of their small size, the relative ease of keeping them alive in an aquarium, their close relation to a game fish (black bass), and because they belong to a species which was definitely not supposed to be able to hear any frequency higher than 5,000 cycles per second.

The fish were placed in a 50-gallon aquarium. A wire feed cage was constructed that could be lowered into the tank in such a manner that a fish had to go look into it before it could tell whether there was any food in the cage. A variable frequency oscillator (a device for producing pure tones or frequencies) and a waterproofed earphone made up the sound equipment. The intensity was controlled by using a vacuum tube voltmeter to hold the voltage input constant.

When feeding time came, the feed cage was lowered into the aquarium—empty, if the sound was not turned on, and containing worms if the sound equipment was operating. A random order of feed and no-feed trials was

By **ROBERT E. STOVER**

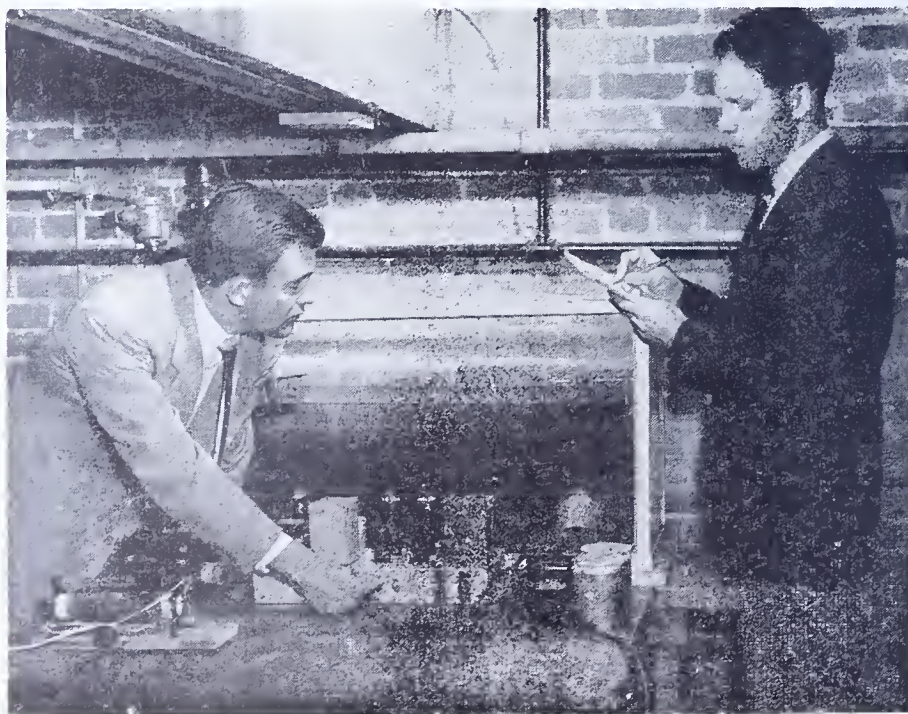
Graduate Student, Department of Psychology
The Pennsylvania State College, State College, Pennsylvania

followed so that the only clue the fish had as to whether there was anything in the feed box was whether or not they could hear the sound. The frequencies were varied in steps from 35 cycles per second to 17,920 cycles per second. All movements, time intervals, light conditions, etc., were held constant so that it all boiled down to one thing: if the fish were capable of learning, which they were, they should learn to come to the feed box only when the sound was turned on and stay away when it was turned off. Thus, when the point was reached where the fish stayed away but the sound equipment was actually on, it was plain that they were unable to hear this frequency.

After 112 feeding trials, the results showed that the sunfish could hear all steps from 35 cycles per second to 8,960 cycles per second, but could not hear 17,920 cycles per second.

Thus, these sunfish are perfectly capable of hearing many of the frequencies of human speech. Before anyone rushes out to buy a rubber boat or muzzles for his fishing companions, however, we should look at the matter of intensity. In this study the earphone was right in the water with the fish. Out on the stream conditions are far different. There is a great loss in intensity when sound passes from air to water, so that it would take a tremendous intensity, indeed, before the fish could hear a fisherman talking. Vibrations from a soggy stream bank or a tacklebox dropped in the boat are something else again. Here the vibration is transmitted directly to the water and naturally the fish can hear it.

The thing to remember then is that intensity is the factor: if you get the vibrations into the water—no matter how—the fish can hear all about it.



Pictured are Paul M. Hust, Jr., and Robert E. Stover (right) working on their setup which includes a variable frequency oscillator and a red and green light slide projector, each of which is controlled by a rheostat and a transformer. Note the feed cages on each side of tank.



SIXTH SENSE in FISHING

By EUGENE BURNS

Co-author—FRESH AND SALT WATER SPINNING
(A. S. Barnes Co., N. Y.)

Author—AN ANGLER'S AUTHOLOGY
(Stackpole Co., Harrisburg, Pa.)

Mr. Burns, well known writer for national outdoor publications, joins our long list of distinguished authors with articles appearing in the *Pennsylvania Angler*. We hope our readers will find much pleasure in reading this first in a series of articles by this top outdoor writer.

IT ISN'T by accident that a good angler can walk up to a strange stream and pick out the very spot where the big fish can be taken.

In fact, this is the chief distinguishing feature of an accomplished angler. Casting is only half of it—and perhaps the less important half.

Furthermore, any angler can learn to do this provided he has the ability to observe and interpret what he sees and put the results to work.

First, to acquire this fishing "savvy," let's observe some isolated facts about a stream and the fish that are in it—and later, we'll put these things together.

Some of these observations are as follows:

Even the swiftest flowing stream has innumerable still water areas where small and big fish can rest.

Practically all stream-bottom insects cannot swim.

Slit a large trout's stomach and about nine-tenths of its contents will be other fish or bottom feed—even though he has just taken your dry fly.

White water does not mean fast water—it means dissipation of energy. Gliding smooth-topped runs can be twice as fast and twice as dangerous to wade.

The size and weight of bottom deposits—stones, pebbles, coarse gravel, sand or silt—denote the velocity of the stream from fast to slow.

Fish feed either in the top fifth layer of a stream or the bottom-fifth—seldom in-between.

Notwithstanding the commonly-held belief of "read the top of the water and you'll know what's happening below at the bottom", the surface of a stream seldom indicates what is happening at the bottom.

At top speed, a sprinting fourteen-

inch brown trout seldom exceeds eight miles an hour while a one-inch trout fry on which he feeds has difficulty in holding his own in one-mile an hour water.

A smooth stream's maximum velocity is attained in a flattened tube-like tunnel about three-eighths of the way from the bank and about one-fifth of the distance below the surface.

Taken individually, you may wonder what these isolated observations have to do with fishing sense. Plenty! Taken collectively, they can have a profound effect on any angler's fishing whether he prefers to take his fish on dry fly, wet fly, streamers, or nymph; whether by live bait or artificial; by plug rod or spinning lure.

The three major factors involved in the foregoing facts and which have a definite bearing on reading a stream and "limiting out" on a glorious day's fishing are these:

1. The stream's flow;
2. The fish's speed and diet; and,
3. The availability of food.

To get right down to cases, let's study the first of these and the rest will come later: the stream's speed.

How is the speed of a stream measured? The accepted method of hydraulic engineers is to measure the flow of water one-fifth of the way below the surface and one-fifth the way from the bottom and then to average the two readings. They do this because water flows unevenly: say, two miles at the surface; three miles about one-third of the way down; and one-half to one-tenth of a mile just

off the bottom. This is in a U-shaped canal, of course. In a stream with its thousands of obstructions, the flow is infinitely more complex. When flowing past a rock, for example, it tends to speed up in spots and slow down in others. Usually, the flowing water around a rock takes the shape suspiciously like the cross-section of an airplane wing or for that matter, of a fore-shortened stream-lined trout. And the rock's maximum width plus the stream's velocity will determine the size of the still-water envelope around the rock and the comet tail of still water behind it.

Multiply this boulder by thousands for every rock in the stream and the angler begins to understand the uneven flow of water in the stream and the vast numberless quiet-water pockets that exist even in the swiftest streams. Besides boulders, of course, there are ledges, undercut banks, roots, submerged logs, kitchen sinks, and uneven depths on the river bottoms where fish seek refuge from fast water which tires them.

Because of these countless retarding and speeding-up influences, the distribution of velocities in any cross-section of a stream are never alike. And the speed of many streams is most deceptive. The smooth-topped Mississippi off Vicksburg may be twice or three times as fast as the cascading white water of the Aroostok in Maine. The point is, white water need not be swift water—in fact it is often quite slow. Also it is full of oxygen which

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fiddleheads

By WENDELL P. DITMER

Anglers line their creels with our beautiful, native ferns to keep catch cool and fresh. Though you've plucked them over many, many trout seasons, how much do you actually know about the plant? Mr. Ditmer, Botanist, Pennsylvania Department of Agriculture, Bureau of Plant Industry has prepared this delightful, educational article for your specific information.

WHAT is more pleasing than to fish along a stream lined by one of Nature's most beautiful green carpets, the fern? Or to breathe of the fragrance of these plants as you walk through the woods? Think of the people, perhaps yourself, who have used the dry leaves of the fern to start a fire or made a bed of them for over-night camping. But what do you really know about the fern, its haunts, and its many varieties?

Geographically they range from the Arctic Circle to the jungles and mountain forests of the tropic regions. In form and habit they may vary from tiny mosslike plants, a fraction of an inch in diameter, to the towering tree ferns, which are big enough to be used for telegraph poles and as building timbers. These are found in the tropical forests of South America,

Africa, the Hawaiian Islands, the Philippines, and Australia.

An exceedingly ancient group the early forms of ferns and fernlike plants dominated the land vegetation a hundred million years ago. They were among the first and the simplest of the larger land plants, and their solidified remains make up in large part the coal fields of today. Only a few of the fern families that contributed to these deposits now have living representatives. Through the ages they have waned steadily in number of species and in importance as the flowering plants have become more numerous and abundant.

Many uses have been found for the fern throughout history. In folklore the

spores of the Lady Fern were said to make a person invisible if placed in his shoes or to give a person second-sight. Shakespeare referred to this legend in Henry IV, when Gadshill exclaims: "We have the receipt of fern-seed, we walk invisible." The English writer Ben Johnson also expressed the same idea in these words: "I had no medicine, sire, to walk invisible, no fern-seed in my pocket."

In olden times many ferns were thought to have curative properties, and, in the form of syrup and concoctions, were prescribed for pulmonary affections and various internal disorders. Fern extracts were often placed in quack medicines, especially when the potency as a medicine was judged by the disagreeable taste of the dose. Occasionally a few of these extracts are found in today's medicines.

The Indians of our country and the early settlers found uses for such ferns as the Common Bracken and the Cinnamon Fern. The new shoots or "fiddleheads" were used as food. Also, just as today's campers and fishermen do, they



Photos—Courtesy of the American Museum of Natural History.

CINNAMON FERN, along with Common Bracken are most commonly used by anglers to line their creels, campers use them for bedding. Indians and early settlers used young shoots for food but the Common Bracken is considered poisonous to cattle when eaten in large quantities



WALKING FERN shown here growing near Dwarf Spleenwort is rare, has interesting trick of striking root at the end of the frond, producing a new plant.



MAIDENHAIR SPLEENWORT is one of our daintiest ferns, tucks away in chinks of shaded cliffs or rocky ledges.

All Photos Courtesy of the American Museum of Natural History.

CHRISTMAS FERN is widely used by florists in floral designs. Ferns are flowerless plants, fronds growing from rootstock uncurl their new leaves, look like curven head of a violin, hence name "fiddlehead."

were used for bedding or to start fires. Domestic livestock and wild life sometimes feed on the fern when other brouse is not available. The Common Bracken is considered poisonous to cattle when eaten in large quantities.

In this modern age the fern has found its way into the home, either beautifying the interior or the grounds surrounding it. The Christmas Fern and the Common Wood Fern are widely used by florists with the purchases of cut flowers. But still the greatest charm that ferns possess is in their natural surroundings, the remote places such as the swamps, the heart of the forest, near waterfalls, in dark ravines, or on mountain ledges.

What exactly is a fern? A fern is a flowerless plant growing from a rootstock with leaves or fronds usually raised on a stalk, rolled up in the bud, and bearing on the lower surface spores by which the plant reproduces. The rootstock is an underground stem. The fronds growing from the rootstock give the ferns a most notable trademark, the "fiddleheads." Ferns all uncurl their new leaves in the same manner, reminding one of the curved head of one of the stringed instruments, such as the violin. Not only does the main axis of a fern frond uncurl in this characteristic fashion, but the pattern is repeated in every detail of development. Every leaflet uncurls exactly as the main stem, and if the leaf is doubly or trebly compound, as in many fern species, these subdivisions come out as smaller "fiddleheads," repeating the parent pattern.

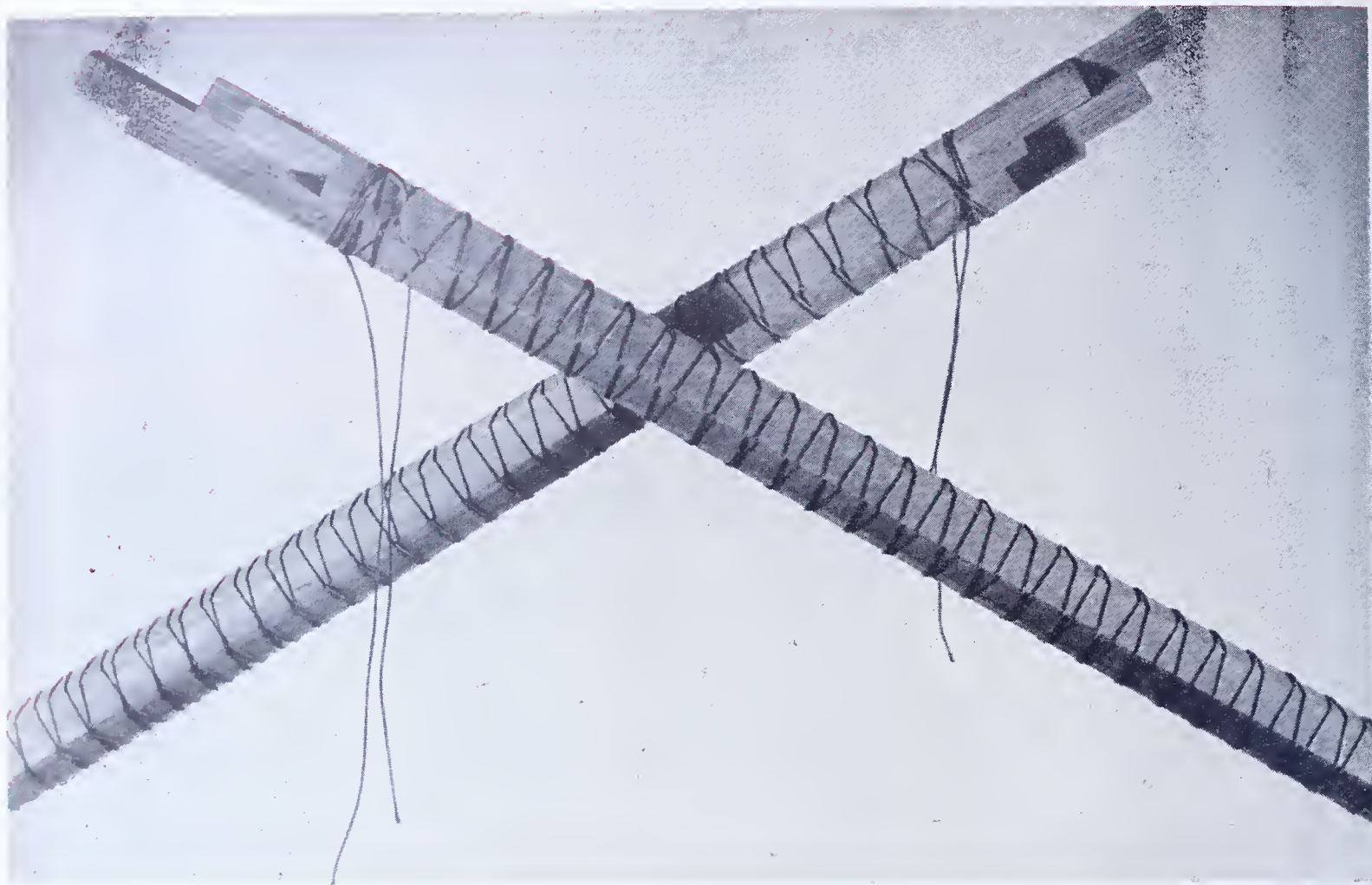
Ferns produce spores instead of seeds. These spores are found in spore cases, which are the dots or lines on the back of a frond or along the margins. The shape of these spore cases is one means for identification of certain species. They may be round, linear, oblong, kidney-shaped, or curved. Some spore cases, instead of being on the lower



HAY-SCENTED FERN or Dicksonia has sweet scent when crushed or dried. It grows in pastures, open dry woods and is very sensitive to early frost, bleaches almost white in the fall.



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Glueing Technique

PART I

THERE is no rodmaker, amateur or professional of any experience, no matter how little, who has not suffered the torments which attend the glueing operation. This was especially true in the old days when there was nothing but hot animal glues—the kind that chilled within seconds after spreading and prevented the triangles from coming together, even after working with the utmost speed and pressure in the wrapping procedure. Sometimes, even after an apparently good glueing job—all seams closed and the joint beautifully straight—they flew apart the first time they were used in the finished rod. One succeeding failure after another of this nature makes the glueing operation a terrifying experience and the rodmaker begins to approach this task with trembling hands and a breathing rate that is perceptibly faster than normal. After all, a lot of care and work and search for good cane goes into that finished rod; oftentimes, a

for the

Amateur Rodbuilder

By **VINCENT C. MARINARO**

Author of **MODERN DRY FLY CODE**

Anglers looking for winter diversion can tackle a new project outlined by Mr. Marinaro, rodbuilder and fly tyer for 25 years, in this series of articles to be presented by the **ANGLER** in two parts.

little of the rodmakers own blood is mixed with the glue and cane. Planed bamboo takes an edge as sharp as a razor blade as many have discovered. In the Orient, it is sometimes used for knives and the swords with which the condemned are beheaded.

In these days of easier to-work-with adhesives and pressure wrapping machines available to the amateur the task is easier, just a little easier. Cer-

tainly today's amateur has a better lot than the man who had to pressure wrap by hand turning and twisting with feverish activity, trying to achieve a bond before the glue set; getting glue in his hair, his eyebrows, his teeth and eating a good bit of it. And yet, today's amateur has just as much of a problem to obtain a good glue joint, as the old timer had. But once I picked up a little volume in a bookshop, many

years ago, the title of which indicated a treatise on rod-building, and because I was sorely in need of, and avid in my search for knowledge on this subject, I carried it home with great joy and anticipation. The author's directions were astonishing simple—and disgusting. "Just take the sheepsfoot blade of your trusty Jackknife, he said, and whittle out your 60 degree triangles very, very carefully, freehand, then, bring the six splines together for a dry run, wrapped with store thread and mark the open seams with pencil for a little more correction with the sheepsfoot blade. Then, if any seams are still open after glueing, just take a little stick and poke some fresh glue into them to fill them up!"

I have kept that book for many years and sometimes pull it down to read and marvel that such uncensored tripe should have been dignified with print. It's only justification is that it gives me a good belly laugh when I fumble a little in my rod making and my morale is low.

All of the problems in glueing stem from the fact the bamboo is an extremely difficult material to glue, and glue, any kind of glue, is extremely sensitive to any adverse circumstances. To mention only one of the many problems concerning bamboo only, there is the headachy fact that every glue surface of every planed strip has a portion which is hard, dense, resinous, and non-absorptive; and another portion which is soft pithy and highly absorptive. The problem of obtaining just the right consistency of glue and just the right pressure to suit both circumstances is not a simple one. We shall see later how these matters are related, but first I think that the inquiry should commence with an examination of the nature of adhesion itself.

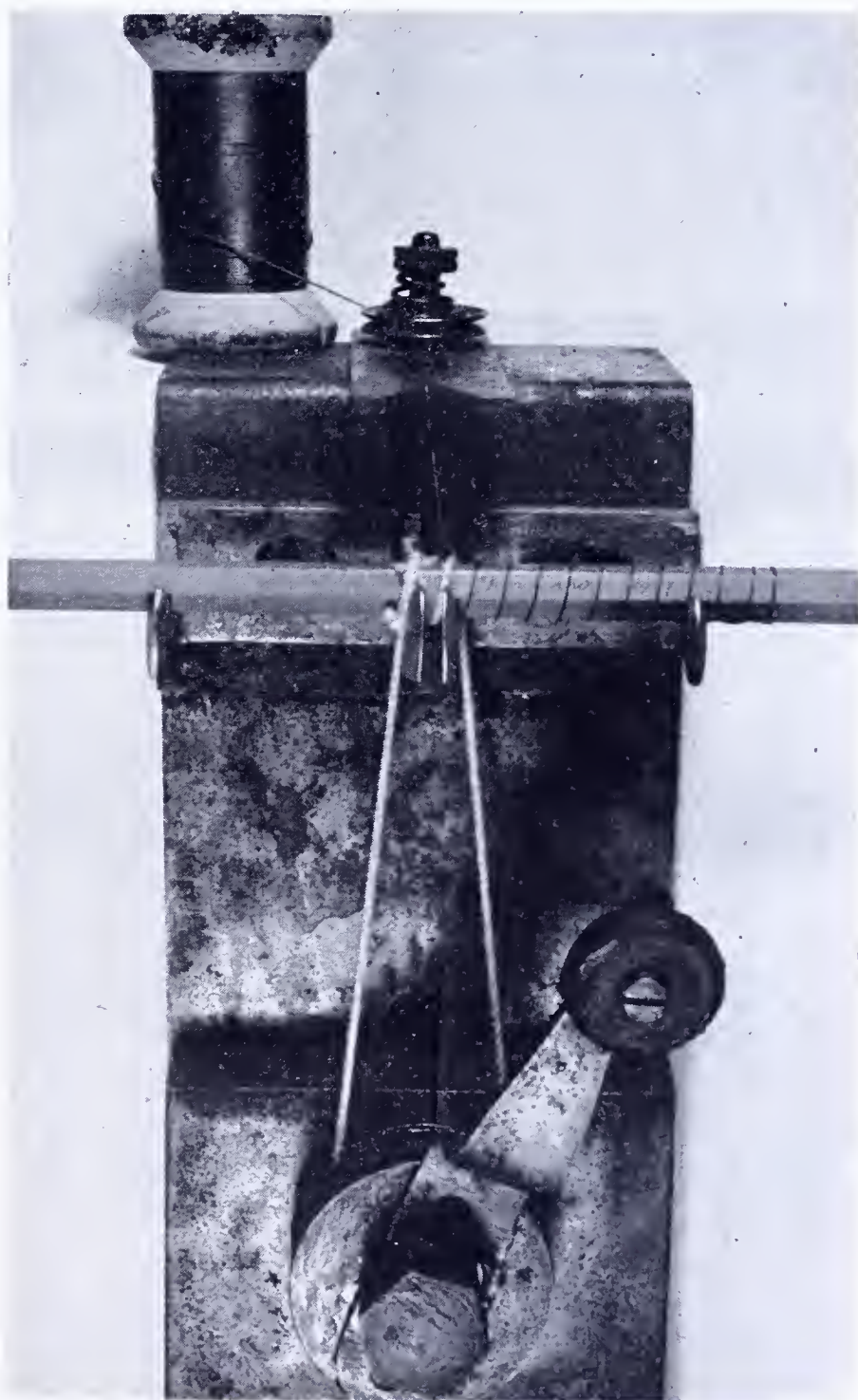
Glue has been used by man for thousands of years but he never really understood the nature of union of two pieces of wood bonded by an adhesive. Only in recent years has there been any serious inquiry, brought about largely by industrial requirements and two highly technical wars. It is generally accepted now by the best authorities that adhesion occurs in two ways. One is called mechanical, where the glue penetrates the wood cells and interstices, just below the surface and is accomplished by reason of capillary action, and the pressure exerted upon the joint. The other is called

Specific adhesion, where very little or no penetration occurs, but a layer of glue remains on the surface to form the bond for the united members. The ideal joint is a combination of the two, when the penetrated glue forms tendrils which remain attached to the surface layer, effecting the best possible bond. You may be sure that there has to be a very nice adjustment of glue consistency and joint pressure in order to force just enough glue into the wood and allow just enough to remain on the glued surfaces. Under poor glueing conditions either type of adhesion may occur without the other.

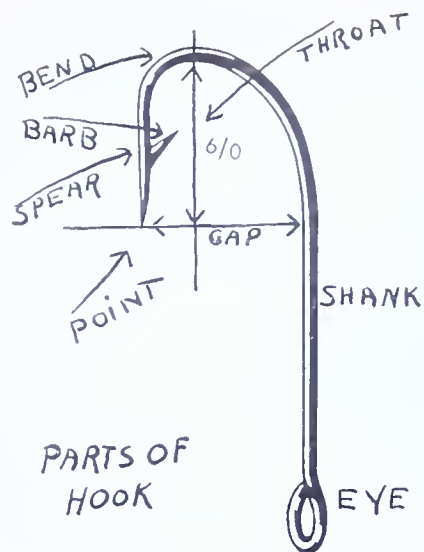
If too much of the glue is absorbed and/or too much pressure is applied, the entire surface layer of the glue may be forced out and whatever glue has penetrated become isolated tendrils which form no bond with the surface or with each other. It is clear that mechanical adhesion alone is worthless. This is sometimes called a starved joint, but is not really starved because the glue is there in the wood, except that it has not been properly utilized.

On the other hand, specific adhesion alone, where a layer of glue remains

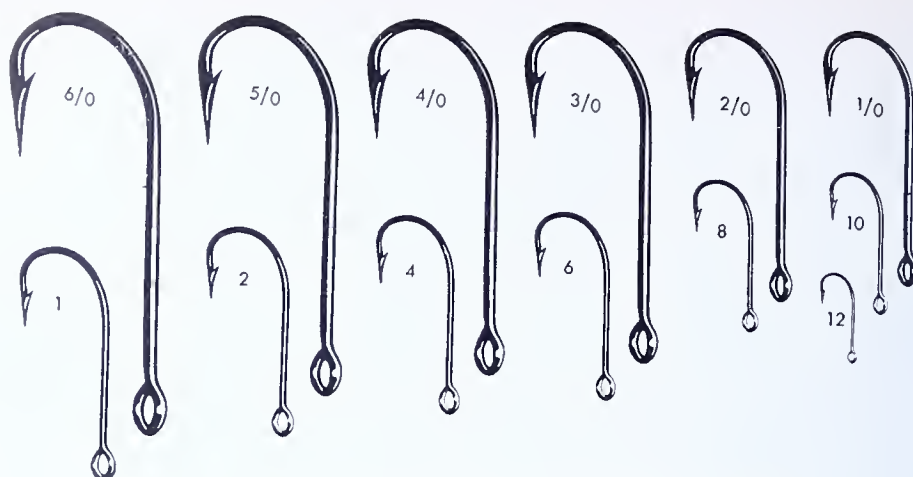
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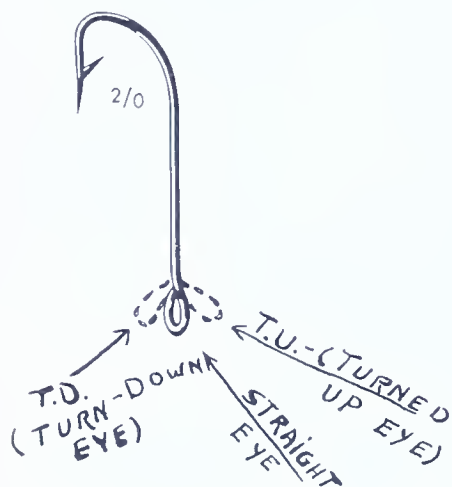
GLUEING MACHINE is a great help to the amateur rodmaker.



Nomenclature of the Fish Hook, to acquaint anglers with features that are important in the varying designs and types of hooks: Throat, Gap, Bend, Shank, Spear, Barb, Eye and Point.



The easily distinguishable sneek model, which has the most abrupt bend of any ordinary standard model. Not often used by the modern angler these times, owing to fact that many consider it easily torn out or disgorged by fish.



To illustrate what is meant by three standard positions of the fish-hook eye: T. D., Turned Down; T-U, Turned Up Eye and S. or Straight Eye.

TO the average fisherman the fish hook means very little so far as its history and its origin is concerned. It is a small and long familiar item of tackle to the majority of us and about the extent of our interest in it is to see that the end of the leader, or the line, we are fishing with has a hook on it that meets with our general approval in the uses we expect to give this small instrument.

But back of the sharply pointed tip, the graceful bend and the lethal barb, as well as the shank and eye of that little item of our modern fishing rigs, there hides perhaps the strangest and the most alluring history, of man's eternal striving for better things to work, live and—fish—with, that surrounds any other part of our civilized lives. Thousands of years before the birth of Christ (4000 B. C., we are convinced) the tribes of Egypt were using fish hooks made of a special and forgotten art of processing the metal we call copper. Thousands of years

previous to that, no doubt, other races of men were fishing with hooks made from shell, flint, ivory and bone, and even thorns that were of a natural shape to permit them to string a worm or a cut bait on the needle-like point for the purpose of attracting and catching the finny denizens they pursued, as we presume, for the purpose of food alone. It was centuries later when Mr. Henry S. Hall of England contributed to the fishing world his invention in the way of a Turned Up eye to the shank of his fishing hook. This was done for the purpose of facilitating the more deft winding of a split wing dry fly and, later, still another great English angler, the redoubtable Charles Pennell devised an opposite bend for the eye of the hook which brought him into the Hall of Fame in angling, the Turned Down style of hook eye! The Pennell pattern of hook is still one of the popular models anglers choose for their fine fishing trials and triumphs.

The English city of Redditch became world famous from the time Hall and Pennell ventured these advances in the styling of the straight-eyed hook to more versatile and adaptable potentials. Redditch was a noted city where the manufacture of needles was a leading industry and, naturally, the factories there swiftly converted to the making of fish hooks. The Needle Point hook was originated that way and at that place and it is essentially the same today outside of the barb as the keen pointed sewing needles firms like the noted Alcocks, the Millwards, the Warrens and Harrisons produced there originally and later turned this face into even greater fame by sending out hooks to

Ageless

SNARE - -

The Fish Hook

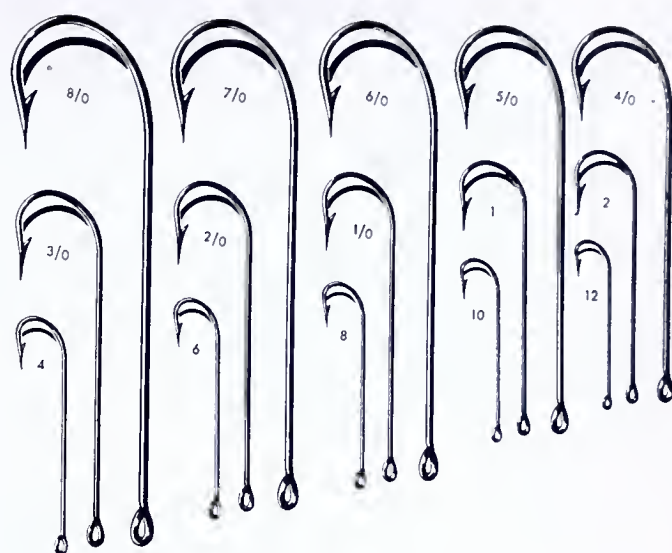
By BEN C. ROBINSON

Author: POND, LAKE AND STREAM FISHING, WOODLAND, FIELD AND WATER-FOWL HUNTING

Fishing Editor—FUR-FISH-GAME Magazine



The "Kirbed," or side-bend type hook, known in this case as the Pflueger DeLuxe Kirby. As shadow denotes the bend of the hook is kirbed or bent-in, as some anglers insist on the hook being shaped. It is a very popular hook among general bait and some fly fishermen—others do not care for it. Kirbed means the spear is bent to right, but this term does not always describe the hook called the Kirby. It varies often in shapes. Trot line fishermen use this hook frequently.



The Carlisle, a hook often used for worm, minnow, and insect fishing, but likely to be brittle or too soft and frequently mistrusted by many anglers for these reasons. It comes usually in straight eye, but can be had in T.D. makes. It is kirbed at bend, sometimes extremely so. Comes often in a blued finish, other times in bronze finish. Still, it is very widely favored, by anglers.

anglers all over the fishing worlds.

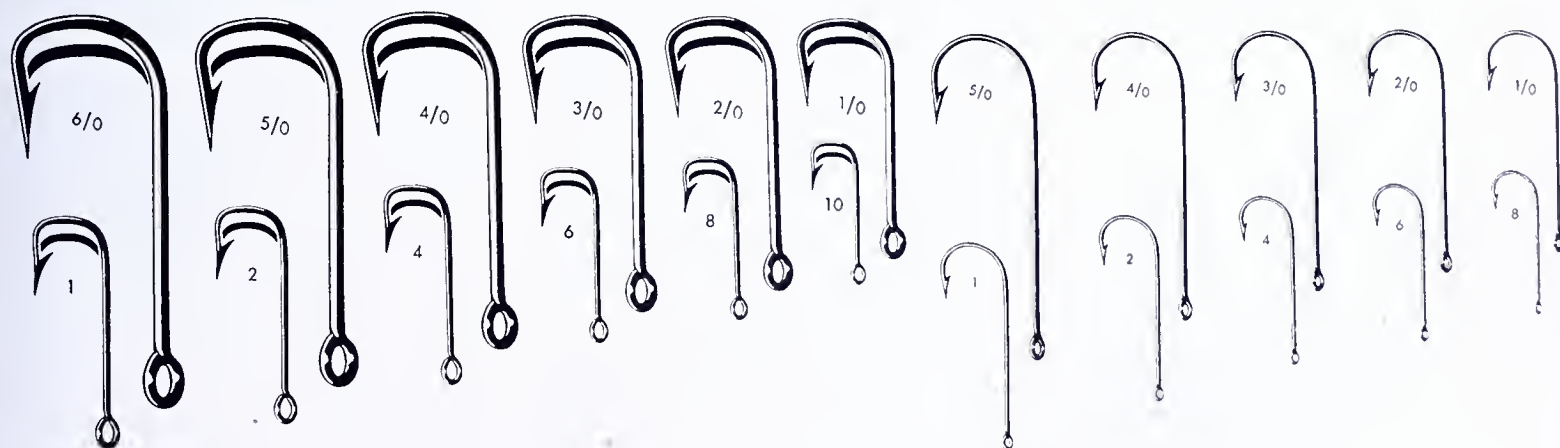
But, not alone in England can we say the modern fish hook was brought to its high standards of fishing usefulness and pleasure. Ireland also contributed its share with the Dublin point and the Limerick hooks. France perfected the "Modele Parfait", or what we today term the Perfect model or Model Perfect hook, which is, unquestionably, used by more anglers and fishermen choosing one style of fish hook than any other type perhaps there is to be named. This is my own supposition; I believe, though, that I am not far wrong in making the as-

sertion. From France the finest and most delicate examples of the hook makers art developed the Perfect and also many other models. They also perfected some beautiful hook finishes, the silver tin finish being one of the outstanding hook finishes that we have to draw on today. I know manufacturers of artificial lures that swear by the light, extra sharp, balancing silver finished hooks that still come from that country.

The great Mustad hook works at Oslo patterned the Perfect hook and called it their Viking. Norwegian hooks are now considered among the

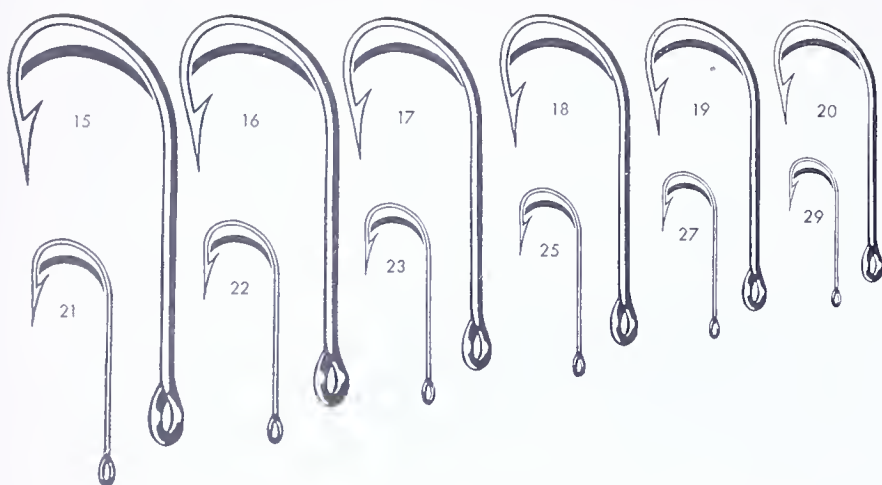
best in the world. Some declare the Redditch, English hooks are the greatest. It is true the steel from the Sheffield works which goes into the Redditch hooks is noted for its temper and quality, but so also is the Norwegian steel, which as we know, was, half a century or more ago, considered great steel and imported into England by the old sailing masters for hook making purposes. Herter's a well known American hook making and distributing firm claim their Gaelic Supreme hook to be a high grade fish hook, but the name is plainly a liberal translation for the great Model Perfect of the French inventor and designer.

In another part of the world where



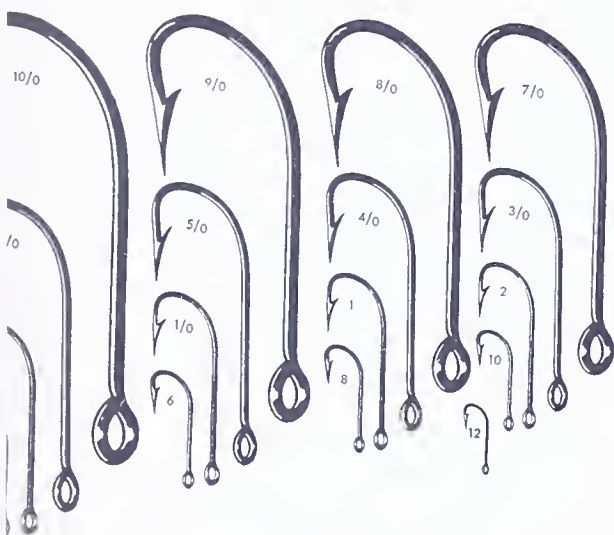
The Sproat model, one of the most popular of all modern hook patterns. A hollow-point, straight bend, modified round throat and gap hook, with heavier wire and a beautiful hooking type that is favored by fly tyers, plug and lure makers and also for trolling with bait. It is a favorite with commercial fishermen also. Comes in T.D. and T.U. eye as well as straight eye. Good for spinner flies also.

The Aberdeen, an English hook type, with a wide, round bend, more shallow at throat and wider at gap than most models. It has the appearance of the sproat, except that the wire is lighter, which some anglers prefer because it makes a lighter fly and a minnow saving bait hook. It is kirbed by some makers, but usually straight and the barb and point are long, the point curving outward generally. Streamer fly tyers favor it.



Concinnati Bass, another "kirbed" shape bend pattern, popular in many sections of the American midlands for live minnow fishing as it gives the bait a wobbling action when retrieved that many anglers think is alluring to bass and other game fish. Note shadow under hook bend which signifies the "kirbed" shape.

The Limerick hook, a favorite model. Hook makers vary its bend, some giving it an abrupt bend, as here illustrated, while other times it has a rounded bend. But it is a "straight-bend" hook, mostly preferred by fly and plug and some bait anglers.



many who angle are unaware that some of the most skilled fishing tackle producers we have ever followed ply their arts—in Japan—one of our most popular bait fishing hooks came into being. This hook is known as the Claw style fish hook. Who has not heard anglers raving over the supreme hooking abilities of this odd and lethal patterned hook? It has a point curved like a Tiger's claw and many old time anglers swear by it for minnow and worm fishing. It is also used as a fly fishing hook and sometimes for lures. It came originally from the Orient. Now it is made and sold under scores of trade names, but it still bears the distinction of being perhaps the only thoroughly Asiatic member of the hook family.

Hook making is not confined to the great factories of Japan, England, Norway, France or Belgium, by any means.

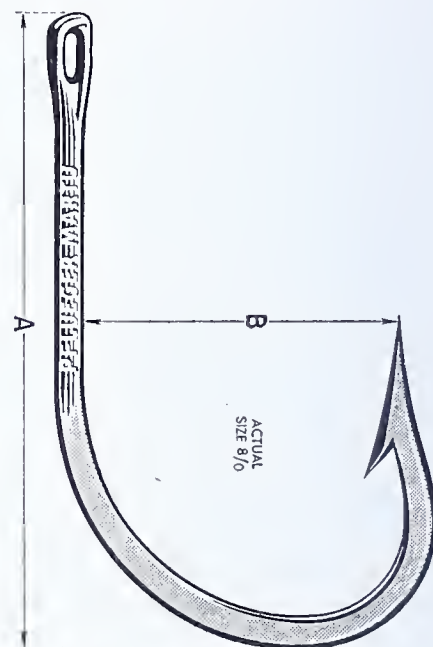
Some years back I was the guest of a very prominent fishing tackle manufacturer, Mr. Ernest Pflueger, of Akron, Ohio. He was at that time, President of the Enterprise Manufacturing Company of that city. Mr. Pflueger has unfortunately passed on, but in his place there are others of this long line of fish hook manufacturers, the Pflueger family, that still carry on the great traditions of the family—making fish hooks! Mr. Pflueger, at one time personally informed me they sold fish hooks in every country and on every inhabited island in the world and that their factory in Akron, Ohio, was one of the greatest producers of fish hooks in the entire world.

To see the manner in which hooks are produced from a great modern factory like that I have been through at Akron, Ohio, is to comprehend what an immense business it is.

Large spools of wire are fed into the machines that mechanically fashion these fishing gadgets and it unwinds off the spool through a mechanism that straightens it properly. It is cut into predetermined lengths. The metal at this stage is in its softest state. In the case, however, of a Needle Point hook being made, the shafts are first pre-cut and tapered by a separate processing to the needle-sharp points, then placed in the machines. The lengths of wire are then horizontally, side by side, sent through and a knife or sharp tool is drawn against the



Claw model hook, with T.D. (Turn Down Eye) snelled with nylon or gut, and a great favorite with bait fishermen everywhere. This hook originated from Japan hook makers. Now made everywhere. In this illustration the hook is branded as a Pelican Long-Shank hook, but it is the Claw type hook.



Example of a special made saltwater hook, forged by hand, hand filed at points and of finest tempered steel with straight needle eye. The modern fish hook factory has specially constructed furnaces for hardening and tempering, to treat steel in the latest and accepted scientific principles. The modern hook forging rooms and departments are examples of highly improved manufacturing methods for building fish hooks. The above illustrated hook is finished with bright tinned coating to protect the metal from salt water corrosion.

shafts of wire at an angle, forming the barb.

The eye is turned next. Then the point filed—if it is not a Needle Point hook—and a File Point or Spear Point is made on the hook, which as the name implies, is one with a straight line from barb to point. These are the less expensive hooks we usually find in wide assortments and numbers on the tackle shelves of most every store where fishing tackle is distributed to the angling public.

The higher grade models are equipped with what the trade defines as Hollow

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Dyeing Fly Tying Materials

By CHAS. M. WETZEL

WHEN imitating trout stream insects it quite often becomes necessary to substitute certain colors for those not naturally found. Such substitutions are usually obtained by dyeing materials to conform to the shade desired.

Dyeing is very much of an art and the amateur had far better try and procure the appropriate dyed materials elsewhere, than attempt to do this work himself. Trying to secure an exact shade will prove disappointing, costly and time consuming. Frankly, the only way is through a trial and error method, and the final result is often far from that desired.

When I established the dressings for the natural trout stream insects described in my book, *Practical Fly Fishing* it was brought forcibly home to me just how difficult the problems of creating an exact shade could be. Feathers, fur, quill, etc. were put into the dye bath and at periodic intervals part were removed; those that remained in the bath the longest time were of course the more deeply colored. At the end of the operation and after the material was dried, the correct color was selected and the remainder discarded. As you can see, such a procedure proves very unsatisfactory. However, I know of no other method of obtaining an exact shade excepting possibly that described in Dr. George Parker Holden's *Streamcraft*. Here it is:

"Mr. James E. Stevens of Kansas City, Mo., writes *Forest and Stream* that a more simple and at the same time a very effective method of staining feathers is by the use of the tube oil colors put up for artists; only a few drops of the paint being required mixed with a little gasoline. Any shade is possible by blending the colors and a feather dipped in this gasoline solution is permanently colored and can be used as soon as the 'gas' has evaporated."

While I have never tried the above method it offers interesting possibilities and deserves corroborative experimentation.

My experience has been confined

mainly to Diamond dyes and the procedure is as follows:

Remove the natural oil from the hair, feathers, etc. by washing thoroughly with soap and hot water in which a small amount of baking soda has been added. After rinsing thoroughly, immerse the material in a solution of alum and hot water and again, rinse well. If still oily, follow with a gasoline bath, then wash and thoroughly rinse.

Procure Diamond dyes—the kind used for silk—from the drugstore, and follow the manufacturers directions printed on the packet for dyeing and rinsing.

John Harrington Keene, in his *Fly-Fishing and Fly-Making* offers the following method for drying feathers, which is claimed to re-establish their fibres in the natural position:

"Get a stiff paper bag and put the feathers in loosely; then leaving the mouth open, stand the bag on a moderately hot stove. Of course, they will very soon get warm—and you must watch that they do not scorch—but the bag will be filled with warm air, and should now be taken and shaken with energy. This must be repeated at intervals till the feathers are dry, when they will be found of very satisfactory plumage."

Another method of rearranging ruffled up feathers, which I am sure is familiar to all, is to hold them in the steam generated from a boiling tea kettle.

Keene also gives the following receipts for natural dyes:

FIERY BROWN—Camwood, logwood or partridge wood chips in equal parts, boiled in pure water.

OLIVE—Fustic and camwood or logwood in equal parts, with a very small portion of copperas added when at the point of boiling; the last named determines the shade. The outside of large onions boiled, also are good.

GREEN—An infusion of fustic chips, to which must be added oil of vitriol, in a quantity sufficient to gain the shade required.

LIGHT YELLOW—Barberry bark in solution.



DUN—Logwood and copperas.

BROWN—Fustic chips, two thirds; logwood, one third; boil in rain water.

BLACK—One half pound of logwood chips, boil in half a pint of water; this done, put in one ounce of copperas and stir up.

The well known sportsman, H. G. Tappin in his *Fly Tyers Handbook* tells of the effectiveness of picric acid powder for obtaining yellow colors. He says:

"Feathers and bucktail can be dyed a rich golden yellow by using picric acid powder, obtainable at any drugstore. Stir the powder into a quart of warm—not hot—water and test frequently with pieces of white cloth until the desired shade is obtained. Naturally, the more powder used in a given quantity of water, the deeper the shade. Using the powder, you can dye feathers and bucktails all shades of yellow from light canary to brilliant gold. This dye will remain fast through the normal life of a fly, and does not seem to affect the texture of the material. Many commercial dyes make the material stiff and brittle."

Where exact shades are not necessary, my usual practice is to immerse entire necks and complete tails in the dye bath. After they are dried, the hardness of the skin can be softened by applying a mixture of equal parts of alcohol and glycerine.

Where a specific shade is required—obtainable only by cut and try methods—the economical thing to do is to tie up the feathers in bundles before dyeing; by so doing, the number of discarded feathers can be kept to a minimum. Also, if the obtained shade is not quite right, it can often be remedied by bleaching in peroxide. In general, one can anticipate the final result best, by selecting in advance white material for dyeing.



WINTER

from a
camera angle

By JOSEF MUENCH





"My Favorite Angling Stories"

By JIM HAYES

The brown took a larger grip on the brookie's tail. The brook trout clamped down until the brown's tail was full in his mouth. And faster they went, whirling dizzily, the circle growing smaller as each fish bit in more of the other.

Patches of foam, churned to the surface by the action, were splashed to the banks by rising waves. Stream-birds scolded from overhead branches and chipmunks, chattering excitedly, scampered from rock to rock.

Then it was over. Bird cries tapered to silence. Chipmunks paused their scamperings to peer into the stilling waters. The pool was empty. Quiet, and empty.

In their wrath and fury, the trout had swallowed one another. Completely!

* * *

Undoubtedly there are better, perhaps even taller, fishing stories than Eugene Slocum's "Tragedy of the Elm Pool," of which the above is a condensation. But few better have been written, I believe, in the past ten years.

For fishing stories, like wine, need time to acquire real flavor. And, another factor, it seems possible that "favorite" stories reflect inspiration of a type not easily found, and less often recognized, nowadays.

Admit it or not, this mechanized age of ours—for all its gadgetry and fancy tackle—has cost us something in angling lore and tradition. There is less mysticism surrounding it, less of the "brotherhood of anglers" spirit

that was present in the days of, say, Henry Van Dyke.

This is not, of course, an indictment of contemporary fishing writers. There have been some excellent yarns in our outdoors magazines in recent years. And a few—very, very few—even possess enough originality and literary quality to perhaps someday rank them among the alltime best.

The finest my memory can recommend is a 1938 vintage saga by William J. Schaldach which appeared in *Field & Stream* under the title of "Old Ragged Fin."

If you stepped into a fishing lodge and saw an immense brown trout mounted above the fireplace, you would naturally be interested. And if the plaque stated the fish was taken on a number 16 dry fly, and landed in a very short time, you would—or should—sense the presence of an unusual yarn.

You would be quite correct, of course. And "Old Ragged Fin" is such a story.

For several seasons, according to Schaldach's tale, Old Ragged Fin had been the scourge of the stream, and pet topic of discussion in the nearby angling lodge. Occasionally he had been hooked, but such skirmishes were extremely short-lived, invariably ending with a splintered fly rod or broken leader.

One day toward late season, two lodge members—both dry fly purists—having worked their way downstream to the lair of the legendary trout, decided to try their luck.

INSTINCT, more than movement, warned the big brook trout of impending danger. Obviously master of the elm pool, he fanned excitedly against the swift current spilling into his root-tangled realm.

At the base of the pool, a great brown trout hesitated in the riffles, surveying the water ahead. Deep, cool and shaded, the elm pool was choice water for trout. And only the biggest and strongest could hold it.

Suddenly the brown circled in the shallows. The brook trout swirled to meet the challenge. Then the brown surged forward and the battle for the elm pool was on.

Savagely the huge trout lunged at one another, seeking openings, ripping with sharp teeth when they found them. In one charge the brown hit the brookie off balance, slashed his underbelly as he shot past, and clamped down on his tail.

In an instant the brook trout turned and seized the brown's tail in his mouth. Thus engaged, each with a death grip on the other's tail, the warriors churned around and around.

Their lodge was at this time sharply divided into two factions, the battle-lines finding the dry fly purists on one side, and wet fly fishermen on the other. Naturally, there was much speculation as to which faction would be credited with the demise of Old Ragged Fin.

So, rigging up with large-sized dry flies, the anglers began casting. It took a half-hour of unrewarded flailing to convince them that their quarry must be dozing under his sloping rock hangout.

Meanwhile, a small trout had been rising in the shallows at the mouth of the pool. One angler snipped off his big fly, tied on a number 16 dry, and unlimbered a few casts in that direction.

The fish, a six-inch brookie, rose immediately, took the fly and was hooked. In the final cast, however, the angler had stripped off too much backing. And some had become tangled at his feet.

Instead of bringing the trout to net at once, he stripped off slack and began clearing the tangled line. He completed the job in time to see the last of his slack disappearing under the sloping rock. And the pull at the opposite end was decidedly not that of a six-inch trout.

This opinion was further substantiated when he lifted the rod-tip. There was no give; nothing, except a great weight, and an ominous shaking of the rod-tip from side to side.

Reconstructed later, what had happened was this: as the small trout swam downstream with the tiny fly embedded in its upper jaw, Old Ragged Fin cruised from under the sloping rock and engulfed him. When the angler raised the rod-tip, the fly tore loose and caught in the jaw of Old Ragged Fin.

It was simple enough, what had happened. What followed was not so simple for the shaken fisherman as he gave line and scurried up the streamside behind the powerful lunges of the giant brown.

Had the fish been hooked on a larger fly, the situation would still have been nearly hopeless. But a number 16 dry fly is a delicate weapon, and Old Ragged was a savage tackle-buster. Moreover, the only available landing net was never built for a fish of such massive proportions.

It was a hysterical plight for the two anglers, who wanted desperately to bring home the fish as a glorious victory for the dry fly faction. But with

each rush, each prolonged period of sulking, hopes of ever landing the trout grew dimmer and dimmer.

Finally the on-looking angler, who had been shouting advice and encouragement to his partner, conceived a wild scheme. Cutting the leader from his line, he fashioned the line into a noose, like a tailer.

After much maneuvering, he managed to slip this noose over Old Ragged Fin's tail, drew it tight, and the trout had troubles at both ends. Even with the pressure of two rods against him, the fish was still no push-over.

As Schaldach relates, "It was like taking a bulldog for a walk on a leash."

Gradually, however, the deep lunges grew less powerful. Several times the fish came up to roll on the surface. And finally, still resisting, he was worked into the shallows and banked.

But getting back to the lodge and the mounted glory of Old Ragged Fin gracing that plaque above the fireplace. Remember, the inscription stated the fish was "taken" on a number 16 dry fly.

Or, as Schaldach concludes, "Or was he?"

* * *

As stated earlier, "Old Ragged Fin" is a product of the late '30s, and a remarkably good one. Working forward, through the 1940s and '50s to date, I find little to recommend.

Several writers—Gordon MacQuarrie and Arthur M. MacDougall Jr., to name two—got off some dandy yarns in that period. But it will require the passing of another decade to find a niche for their stories with any real prospective.

Looking backwards, into the 1920s, presents an infinitely more attractive picture. And it may be symbolic that the '20s are so well represented in our selection of "favorites."

For many believe those years to represent the turning point of fishing in this country, marking the end of what we may choose to call "early American angling," and the beginning of what the sport has come to today.

If literature, like history, reflects the tempo of its times, angling in the 1920s, and before, was quite a different sport than our fishing of today. It was certainly more exclusive. It seemed richer, mellower, less frenzied.

And if those points are disputed, it is less easily denied that the sport gave rise to a sparkling, really lasting tradition in the angling classics it produced.

Henry Van Dyke was still around, as was Dr. Henshall, promoter of the bass. So was Henry Slocum, from whose book, *Ye Gods and Little Fishes*, our opening yarn, "Tragedy of the Elm Pool," is borrowed.

Less widely remembered than Van Dyke, Slocum's single outstanding contribution is easily lost in the voluminous writings of Van Dyke. For "Tragedy of the Elm Pool" however, and another from his book, "Gathering of the Clan," he richly deserves a place in any collection of favorites.

Van Dyke was the acknowledged master, of course, and will not be denied his place. In addition to being an author and angler, he was also a connoisseur of fishing stories. Among those he recommends is "Crocker's Hole," an old English yarn by R. D. Blackmore, better known as the author of *Lorna Doone*.

There have been few collections of all-time favorite fishing stories—and no truly complete ones—in which "Crocker's Hole" has not appeared. It is an excellent tale, and that it has survived more generations of readers than most stories see, speaks for itself.

Returning to Van Dyke, to choose the best of this author's writings is to select a diamond from a treasure trove. Each was a gem in itself, superbly cut, drawn together with all the warmth,

(Turn to Page 28)



BEFORE the erection of sumptuous Split Rock Lodge and even prior to the appearance of the many cottages that ring the two and a half mile shore line of Lake Harmony in the Pocono Mountains of Pennsylvania, I set out from Philadelphia in an open touring car that was to take me on the greatest fishing expedition of my life. One lovely evening toward the end of the month of June my old Overland jingled into the beautiful mountain town of Mauch Chunk, then widely advertised throughout the East as "The Switzerland of America," and featuring *The Switchback*, the oldest rail road in

order that the latter, lulled to sleep by the simulated waves of the sea, upon which he had grown up, would not suffer insomnia. This phase of Lanty's youthful watery experience came to an inglorious end when, one night, he absentmindedly forgot to retain his hold on the handle of the bucket, so that both pail and water crashed through the window to land on his father's dome.

As the Pennsylvania Dutch used to say, "He is the sort of man I'd like to steal horses with." But Lanty was of Irish descent and retained a mellow brogue as thick as any on the old

FINNEGAN'S FISH

By Paul Ambrose

America. The sun had set in a flood of golden glory; purple shadows could be seen on the crested mountains and in the hooded hollows. A silent stillness slept upon the tranquil waters of the Lehigh River, broken only by the shrill far away whistle of a freight locomotive in the valley beneath. Lights like truant stars began to twinkle in the homes on the mountainsides.

My ancient rickety vehicle which broke upon the stillness contained, beside myself, another person, like of which I defy you to find in fact or fiction. Any description I give of him will fall far short of reality. I had picked him up at a prearranged point outside of town. His name was Lanty Kerrigan and he continually wore on his rugged, indestrustible puss a grin that was impervious to care or hardship. The artist Henry Major in his *Gay Philosopher* has somewhat captured on canvas the facial expression, costume and general appearance of my friend.

His first contact, or rather, experience with water had nothing to do with fishing, upon which, at the time I met him, he had become an authority. It consisted of hurling buckets of water against the window of his immediate male ancestor's bedroom in

sod. His wholesome attitude, free from worry and care, his comical get-up topped off by a battered and faded hat, his knowledge of the best fishing spots and his many stories of fishing lore made him an excellent companion, a tonic nearly as good as the cascade of waters into a pool of trout. Accordingly, having had the pleasant experience of his companionship on a previous fishing excursion, I was prepared for his relaxing influence, but not for the wonderous lake to which he took me nor for the subsequent battle with the largest trout I had ever seen or hooked.

"That's a nate finish, your honor," he exclaimed as I brought the front wheels into collision with a huge boulder that lay in the roadway before the white painted hotel.

Hot and tired as I was after the exhausting trip, I could not repress a smile as Lanty rambled on, "The fowl is in the oven an' the cabbage to poltice the bacon is young an' tender an' ye'll enjoy the meal I ordered."

After a restful night we started into the Poconos, heading the high car toward the ascending mountain over which the rising sun was taking his early morning peep. Piled onto the back seat were our complete paraphernalia of folded tent, poles, pegs, fish-



ing rods, reels, lines, lures, flies, thermos jugs, food and incidentals too numerous to mention. With Lanty at the wheel we climbed up the mountain along the perilous dirt road, now paved and known as Highway 903. In spite of the jolts and jars and my gripping the side of the car to hold on, I was able to admire the scenery and note the budding rhododendron and mountain laurel, so profuse in this region of the country. Withal, however, Lanty seemed bent upon not missing any jutting rocks or deep ruts.

"Where are we headed?" I asked when we reached the flat top of the mountain and had no more need to secure ourselves for dear life's sake.

"We could go to Bear Creek," said

Lanty in his sometimes round about manner of expression, "but I think I'll take ye to a lake where the throuts are lepping into the frying-pan out of the wather foreninst ye. It's on top of a mountain an' as purty as a picture, about twenty miles from town. There's a monstrous trout there an' no one has been able to ketch him, yes sir, almost as big an' as wise as Finnegan's trout."

"Finnegan's trout! What kind of trout is that?" I asked.

"Peter Finnegan," said Lanty, "was a great fisher in the auld country. Nothin' could bate him. He'd ketch a fish as sure as he wetted a line, an' no matter how cute or cunning, he'd have them out of the wather before they could cry murther. But there was wan auld trout of shuperior knowledge that was well fed on the hoighth of wurrums an' flies, an' he knew Peter Finnegan, an', begorra, Peter knew him. They used for to stand foreninst wan another for days an' days, Peter flappin' the wather, an' the auld trout flappin' his tail. 'I'll have ye, me man,' sez Peter. 'I never was bet be a man yet,' sez he, 'an' I'm not going to be bet be a fish.' So he ups an' putting a bottle o' the strong stuff in his pocket for to keep up his heart, he ups an' begins for to fish in airnest an' for the bare life. First he thried flies, an' thin he thried wurrums, an' thin he thried all kinds of contrhaptions, but the auld trout turned up his nose at the entirety, an' Peter seen him warnin' the other trout to leave Peter's decoy alone. Well, sir, Peter Finnegan was rothy an' aisy riz—the heaven be his bed—an' whin he seen the conspiracy to defraud him, an' the young trout laughing at him, he boiled over like a kittle, an' shoutin', he made a dart into the river. Whin they pulled his body from the river a day later the bottle was safe in his pocket, but the auld trout got at the whisky an' drank it every drop."

My joyful laughter echoed across the mountain and was produced as much by his manner of telling as by the story itself. With a gusty prologation of the laugh at his attempt to keep at the head of the Annanias Club, I asked, "Didn't anyone ever catch him?"

"Ketch him!" exclaimed Lanty with a show of indignation. "Wisha, no wan could ketch him, nor all the fusiliers in the army, nor the divil himself—the Lord be between us and harm—wouldn't ketch him. He was as cute as the serpent or the whale that swallowed Jona."

About eighteen miles from town we turned into a single lane road, overhung with branches and briars that reached out to further impede our progress. Lanty's forecast of the excellent trout fishing curbed our impatience at our slow progress. Indeed this was the forest primeval. The two tracks over which we travelled would make passage for the low slung modern cars impossible.

We finally broke through into a clearing and the lake stretched before us. Here on top of the mountain, the long clear blue-green water lay in the lap of the verdurous shore line. No living thing broke upon the solitude as the car came to an exhausted stop. The silence, after the accustomed rattles and jolts, was as complete as if the brush had whispered the single word "hush" and awaited some pageant to be enacted before this Masterpainter's masterpiece of nature.

I broke the silence by saying, "This ought to be a good day, Lanty."

"Shure enough," said Lanty, looking up into the sky, then down at the lake. "There's the boat; av we don't ketch the full av her, it's a quare thing."

With this we proceeded to stow what we needed in the boat.

"Now she's aff," cried Lanty, seizing the oars. "Out with your flies an' more power to your elbow."

Lanty said he would put me on the spot where the uncatchable big fellow that reminded him of Peter Finnegan's trout hung out. My eagerness was apparent as I nervously awaited the moment of cast, an eager nervousness somewhat akin to the anticipation of a halfback awaiting the initial kick-off before the big game. In my haste I had tied on the first fly that my fingers encountered. Now I saw with apprehension that it was a nondescript fly that I had strung together from pieces of multicolored yarns left over from my standard tieings. It had looked so odd when I finished it that I had clipped it down to a few threads. No fisherman would ever select it, but here I was preparing to go after the largest trout I would ever see with a fly destined by even the rankest amateur.

Half way down the lake Lanty stopped and then turned toward a covered spot where he said underground springs supplied the water for the lake. No sooner had my inglorious fly touched the water than an enormous fish plunged at it with a splash like that of a boy jumping triangly into

the water, and away went the line off the reel as though uncoiled by machinery. This looked like it and it was. Catching a glimpse of the big trout as it broke water, I knew that I had my hands full. Sometimes winding in, then giving the rod until it bent like a whip, I often feared for the line on the bottom rocks when the trout plunged into the depths.

"If the gut howlds, ye'll bate him, brave as he is," Lanty shouted in an ecstasy of apprehension.

Suddenly the line went slack. I knew that I had set the hook well and concluded that the rocks had cut the line.

"Hreel in, man, hreel in," shouted Lanty, almost upsetting the boat in his agitation.

I did as he demanded and soon was pleasantly surprised to find the resistance of the large trout at the end of the line. It took me the better part of an hour to bring him near the boat with my light tackle. When Lanty reached down and slipped his hand into one of the gills and hoisted the flapping beauty into the bottom of the boat, I slumped exhausted on the seat. Here I, a mere amateur, had got the largest and most elusive fish in that part of the State on a makeshift fly.

We got many more on that and subsequent days but none to equal the trout that reminded Lanty of Finnegan's fish. Lighting a cigar and seating himself on a rock near the blazing fire, after enjoying the flavor that only freshly baked trout can give, Lanty continued his stories until bedtime.

We stayed a week and had ideal fishing. How Lanty got the car over the slippery road on the last day, a rainy one, I'll never know. As I looked back the white mists settled over the water, mellowing the dark green of the pine trees on its edge and the fading patches of blue in the sky.

"I'll be back next year," I said to Lanty at the door of his home.

"Bedad, ye needn't have told me," exclaimed Lanty with his infectious grin. "I knew ye would."



MAKE YOUR OWN LANDING NETS

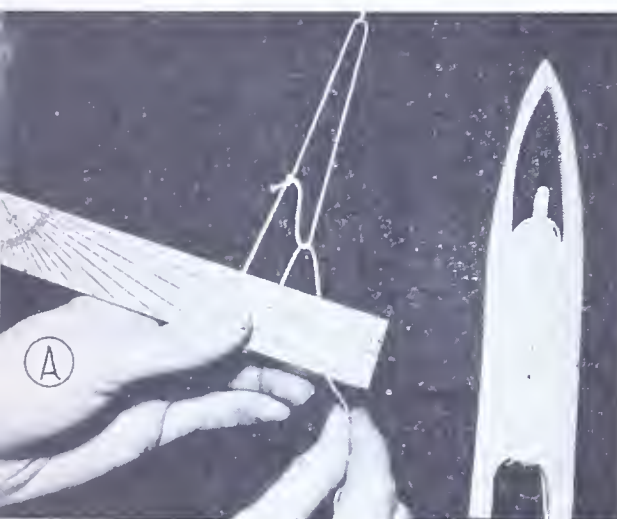
By Don Shiner



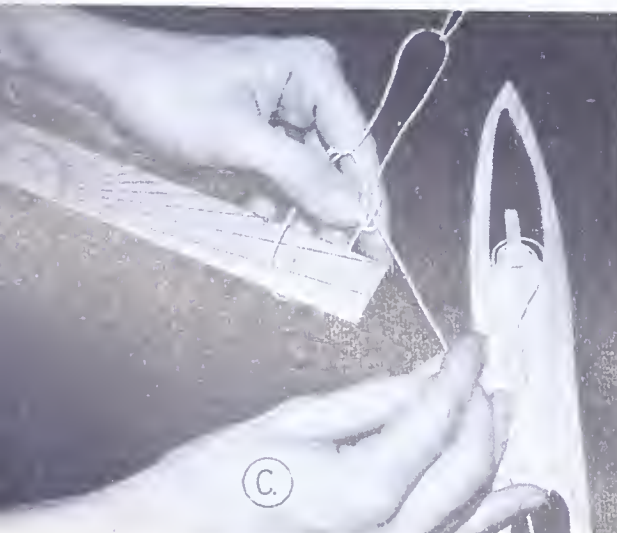
The shuttle is filled with suitable cord. When the cord is used, the shuttle is re-filled again.



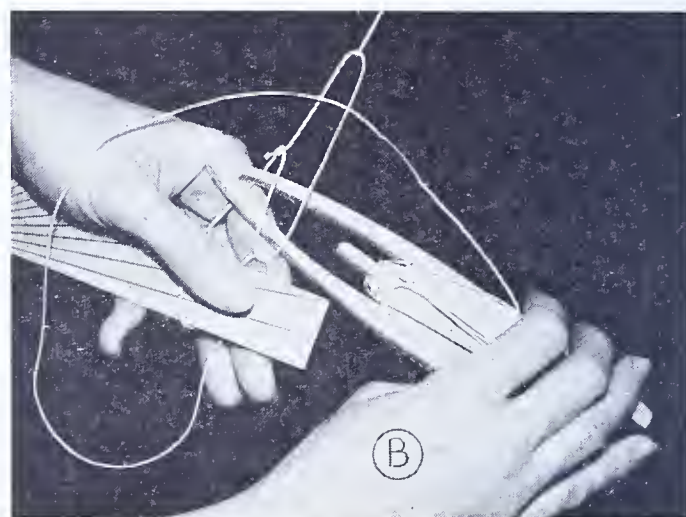
The knot on the right is the correct knot used in net making. The knot on the left has slipped below the "V" of the upper loop and has changed into an unsatisfactory slip knot.



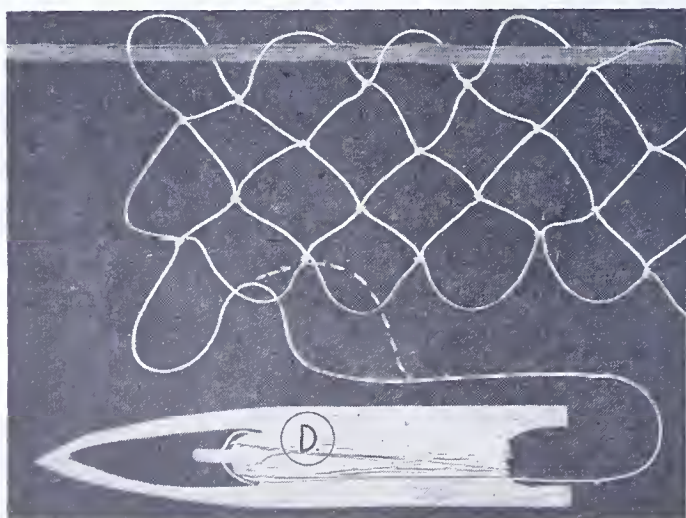
The cord is wrapped around the gauge and the shuttle is passed through the first loop to form the size of the new mesh.



The thumb and forefinger must hold the knot securely while the knot is being tightened.



The cord from the shuttle is laid across the left hand and shuttle inserted into the new loop.



The mesh is placed on a rod for support and the work is always done from left to right on each row of meshes. To taper the bag, merely decrease the number of meshes in each row by one. To decrease, pass the shuttle through two loops instead of one. (Note dotted line).

What's New in Fishing Books

By HUGH JOHNSON

Fun With Trout by Fred Everett (The Stackpole Company, Harrisburg, Pa., \$7.50) is, from the standpoint of physical appearance, a particularly lush job. It is a book designer's "field day" in which the designer apparently spared himself no indulgence in loading the book with every luxury he could conceive. It's a big book with four full color and thirty-two black and white reproductions of paintings by the author, over two hundred line sketches, endpaper illustrations, full color inlay illustration and gold stamping on the cover, with a stout cellophane wrapper around the book. It's nice paper, too, and beaded head and foot-bands blend with the deep maroon binding. A very elegant package, indeed.

Fred Everett is a name that will be familiar to readers of the *PENNSYLVANIA ANGLER*, *Field and Stream*, *Outdoor Life* and other magazines in which his writings and art work have appeared. His drawings have humor, fidelity and a happy, natural *verve* about them that make them singularly appropriate for illustrating and decorating a fishing text. That Everett thinks and sees and dreams and writes as an artist is apparent in his organization of *Fun With Trout* into three "Sketch Groups," each made up of sketches in line, paint and word, the total of which constitutes a generally uninhibited, undisciplined baring of his trout fisherman's soul and a high trumpeting of his plea for all to come and behold the light of what "fun with trout" really is.

There is much in *Fun With Trout* about how-to-do-it, there is quite a swatch of fishing know-how and meaty items of practical helps for the inquiring angler, but for the most part the book is a kind of explosion of an almost boyish exuberance about trout fishing, an eruption in a torrent of words and sketches comprising the author-artist's protest that many of us

I was first introduced to net-making during World War II. We were in-

structed on the procedure of making nets for camouflaging our planes when

parked in some isolated part of the air field. Consequently, when not out on a

mission, we turned our attention to the making of mesh bags for landing nets

and fish bags, with thoughts of using them once we returned home. Many of

us made large nets in the form of hammocks for sleeping under the stars that

shine over the South Pacific Islands. Net-making gave us a fine hobby and it is

one that can also provide anglers with many hours of relaxation.

The tools necessary for making the various nets are namely a needle and

a gauge stick. In addition, a spool of suitable cord is required, the size of

which depends on whether the finished net is to be used for a trout landing

net or for a large boat net. The relatively new nylon cord is ideal since it is

impervious to water and will last almost indefinitely.

The needle used is somewhat like a bobbin or shuttle since it holds a rather

large amount of cord. The gauge stick is used to make each loop in the net

the same size throughout and generally measures half the width of the size

mesh being made. Both can be cut from a thin strip of wood with a coping saw.

The shuttle should measure roughly 6 or 7-inches long and about one to 1¼-inches

in width. The center should be cut out so that a short tongue remains, and all

edges should be rounded off with sandpaper. It is then filled with cord, winding

the cord around the tongue, down around the heel, up and around the tongue

again and so on until it is filled.

Let us describe the procedure for making a bag for the standard size trout

landing net. Such a net may measure roughly 28 loops in width at the top,

tapering to about 12 loops at the bottom, and roughly 19-inches or 15 loops in

depth.

With 12 inches or more of working cord extending from the shuttle, the first

step in net-making is to tie a loop measuring about two inches in length in the

end of the cord. This loop is placed over a nail or some similar support and

pulled down with the knot on the side, halfway between the nail and the bottom

of the loop. The cord is wrapped around the gauge stick and the shuttle passed

through the first loop to form a new mesh (Illustration A). With the gauge

in position, the cord from the shuttle is laid in a rather large loop across the

left hand, shuttle being inserted into the new loop and brought through the loop

laid across the hand, (Illustration B). The thumb and forefinger on the left hand

is then placed over the knot being formed (Illustration C) while the cord is

drawn up tightly. The knot must be held securely so that it does not slip below

the "V" in the upper loop. Failing to do so will form an unsatisfactory slip knot.

Remove the gauge stick and tie another link in the starting chain directly

below, using the same mesh. Continue in the same manner to make a chain of

single loops measuring some 28 loops in length. Upon completing this amount,

slip this single row or meshes over a rod, a curtain rod or some similar support,

with the shuttle on the left side as you will work from left to right each time.

Most net makers prefer to make a bag in a panel form and lace it together to

form a cone when it has been completed.

USE the first mesh again to make another loop and continue across using

each mesh to produce another loop in the chain.

When you have tied the second row of 28 loops reverse the rod and work

from left to right again to form the third row meshes.

For a pleasing appearance, a bag for a small landing net must be tapered.

To make this taper, begin in about the fourth row to reduce the number of

knots in each row by one, so that row four has only 27 loops, row five has

26 loops and so on. To decrease the number of loops, merely pass the shuttle

through two loops instead of one and tie together in a single knot, (Illustra-

tion D). You may decrease the loops directly beneath one another or stagger

them at different positions in each row to give a nice appearance to the net.

When you have completed about 19 rows, the net can be slipped off the rod

and closed. Bring the two edges within a half inch or so together and starting at

the top right, tie the cord securely to the first loop. Go across to the left

edge and tie a knot and zigzag down in this manner until the bottom is reached.

The net will then form a perfect cone and will be difficult to tell where it

was joined together.

Fish bags or live net bags are made in this same manner, however, there is

no need to decrease the number of loops in a row. The bag can be kept

the same measurements throughout. Learning to make the knot well is the

most important thing in net making, so practice a little on this task. You will

find that making your own landing nets and fish bags is a great pastime. Try

making a bag for a trout landing net as described, then next month we'll show

how to make a wooden frame to fit it.

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are not getting out of trout fishing the fun and good that are in the sport for the taking. What almost inevitably happens in a book of such a subjective nature, with the author's enthusiasm swirling around at flood-tide, happens in *Fun With Trout*. There are repetition and overlaying in subject matter and even in phraseology. One wearies of the talk of "viewpoint" and wants to scream at the author: "O.K. Fred, I GET it!" One reads with interest at first about how the author gets fun out of trout fishing, he agrees with the author that trout fishing is fun, but the author drags it around so much that he almost murders his point.

Advance publicity has hailed *Fun With Trout* as potentially "the most popular and controversial (book) in over 100 years of trouting literature." I smell a pretty ripe hyperbole in that statement. To be sure, some of the author's vigorous contention that we have pulled too far away from the bare foot-boy-bent-pin simplicity of trout fishing makes sense. It is true that his enthusiasm for trout fishing is infectious (but what reader of his book or of this column is not already infected?), and it is also true that some of the author's ideas are non-conformist such as his theory that pattern and color in flies are of minor importance, that it makes virtually no difference what fly one uses if trout are feeding, that presentation of the fly is all-important. He puts the knife to the Solunar Tables and other guides as to



when fishing is good or not good. He advocates much shorter casts than is the accepted practice. He opposes Opening Day in the Spring (favors January) and opposes size and creel limits. Yes, these are controversial points but they have been argued about and written about before, so if *Fun With Trout* had to stand or fall on its "news value" alone, it would certainly fall.

Differing on another point with Mr. Everett, I think we would lose more by over-simplifying trout fishing than what we have allegedly "lost" in weaving complexities in and around the sport. Even if it could be proved to me that, when a hatch of green drakes is on, any fly at all of that general size would take fish, I would still have more fun fishing with my Grey Fox Variant because it is a reasonably accurate imitation of the natural. The lore of natural flies and their artificials might some day be proved to be totally irrelevant to the catching of trout, but

when that day comes, you can have it! If the author has used chiefly heavily stocked, private waters like the stream at Skytop Lodge in the Poconos to prove his point that pattern and color are not important in trout flies, he hasn't proved the point at all.

Just the same, *Fun With Trout* in spite of its irritations is fun to read. Exasperating in places, over-written here and there, dogmatic in its plea for less dogmatism, *Fun With Trout* nevertheless overflows with personality, fairly sings the author's love for fishing and the outdoors. Also, to my mind the most important section in the book, that on conservation, is one of the most enlightening and thoughtful discussions of the subject that I have ever read. Not everything in this beautiful book will please everybody, some things in it will irritate some people, but there are enough excellent features in the volume to convince everybody who buys a copy that his money was well spent.

SIXTH SENSE IN FISHING (From Page 7)

rainbow trout like particularly well. In such a pool, the cutthroat trout will lie farther back, and in the more quiet water, the Eastern Brook or the Brown. At least, normally.

What bearing does the flow of water in a stream have on our "sixth sense" of fishing? A great deal, but before answering that one, let's consider the second major factor of where a fish feeds: the fish's speed and diet. After that we'll come to what makes a good angler who can read "fish-yielding" water.

Contrary to common belief, fresh water fish are notoriously slow travelers. Yes, I'm ducking the brickbats of fellow writers who use such expressions as: "The trout took off with express-train speed," or, "greased lightning," or, "like a bat out of hell"—whatever that may mean. At one inch,

a streamlined trout can travel about one mile an hour; at two inches, he can hold his own in two-mile-an-hour current; at six inches, about six miles. After that he slows down so that at fourteen inches his top speed seldom exceeds eight miles an hour. In addition, like most fish he is not strong and even without applying tension to a rod he will tire easily merely in trying to get rid of your hook. A few runs, a few jumps, and he's exhausted.

Obviously then, a comparatively slow-moving, easily-exhausted fish finding himself in water of varying speeds will seek out that water wherein he can live and get plenty of food without undue exertion. The little fry hie themselves to shallow, almost motionless water among weeds which slow the water even further, and incidentally make capture by larger fish

more difficult. Those fry which unthinkingly wander into slow big-fish water at the bottom of the stream are subject to immediate encirclement. But as these fry get bolder and bolder, they do begin to venture into this bigger water seeking the quiet water pockets behind the small rocks and certainly, like all fish, soon learn to stay below the fast water "tunnel" which can wash them head over tails downstream as sometimes happens when they come up for a dry fly.

The angler with the so called "sixth sense" compounded of observation and interpretation takes advantage of this knowledge and puts it to work. He knows where the fish lies to avoid fast water. And this is in the pockets ahead of a rock, alongside it, and behind it; in backwater, holding water, and dead-water areas. And, if it is near the food trough, so much the better.

Fear from anglers and other predators, of course, may drive a fish from these areas—so fishing pressure has a bearing.

And now we come to the third point; where is the most food available to the trout? Where does he look for it and lie in fond expectation?

Remember, we pointed out that silt, fine sand, coarse sand, gravel, and pebbles indicate the speed of water above it? That is because the carrying capacity of water is directly proportional to its speed. Almost motionless water will deposit silt—it cannot carry it; faster water, fine sand; swift water, pebbles.

Looking at it from the food-carrying standpoint, the swifter parts of the water carry more food down the stream and deposit it where the current slows down, as it would fine sand, behind rocks and quiet areas or wherever faster water meets slower water.

To recall another statement we made at the beginning of this article: "Practically every stream bottom insect cannot swim." Why not? Because they live in the quiet dead-water areas of

the streams. As we have already seen, there is an envelope of dead water entirely around each rock. Ever notice how the moss grows on rocks in a swift current? Ever notice how the insects can crawl over these rocks even though the water seemingly flows by in a raging torrent?

Now to link this bottom food with the fish's bill of fare—and then you have the angler with the "sixth sense."

Cut your next fish open again—as you have been doing all these countless years and this time truly study the contents as to where they came from in the stream. I mean chart their location. Then you can arrive at the level at which your fish was feeding—the height of his table top. And you'll find that at least nine-tenths of the big fish food comes from the slowly-moving water at the bottom of the stream where aquatic life teems galore. And the larger the fish I now know, the higher the proportion of bottom food his stomach contains.

On the basis of my observation—where I have seen the larger fish in clear water, where they come from to strike the lure, and the food I have found in their stomachs, I feel I am

fairly safe to make this rather inclusive generalization—knowing full well what a dangerous thing it is to do when discussing game fish: "Nine-tenths of the big fish spend nine-tenths of their time in the still water of a stream where they got nine-tenths of their food."

The angler who possesses the "sixth sense" visualizes the fast-flowing four-fifths of the stream as a protective canopy to the heavy fish he seeks with an occasional hole punched through where swift water meets slow water, and that the large fish live under this protective cover in the comfortable slow water near the bottom and sides. These holes punched through the canopy can be particularly productive to the dry fly caster and he can usually spot these areas by the action of the water—it has a peculiar, jumpy, pointed wave action which seems to be agitated but yet gets exactly nowhere.

Is the sixth sense of fishing intuitive? Yes, if it is intuitive to observe and then put this observation to practical use. But any angler, willing to experiment, observe, and think it through can acquire it and learn to find and take big fish.

FIDDLEHEADS *(From Page 9)*

surface of the frond, are found on the fronds in grape-like bunches. When a spore falls to the ground it does not produce a plant in the ordinary way, but, a tiny, green, heart-shaped, plate-like object called a prothallium is produced. If you were to observe closely the moist, shaded banks of the wood road or a decayed stump you might find this small trothallium. It is on this small plant that the reproductive organs are formed. When fertilization takes place no seeds are formed as in our common weed or flowers, but immediately they give rise to the fern plant as we commonly see it.

Except for the evergreen species most ferns are not yet very conspicuous in the early spring. Many varieties may be seen in Pennsylvania, but those described in the following paragraphs are perhaps the most common and most interesting to all Nature lovers.

By late April and early May the luxuriant Cinnamon Fern appears in swamps, woody hollows, and along the margins of streams. This fern is quite large and is sometimes called "Flowering Fern" because of its flower-like fruiting fronds.

Closely related to the Cinnamon Fern is the graceful Interrupted Fern which may be found most often on rocky banks, along roadsides and in the open woods. In the fall the fronds often turn such a brilliant yellow that they seem to flood the area around with golden light.

In early April when you enter the woods to look for arbutus and listen to the first robins and bluebirds, last year's fronds of the Christmas Fern are still fresh and green. Curled up down below them, like tawny caterpillars, are the young fronds which, when unrolled, contrast strongly with their polished, dark green, leathery companions. The Christmas Fern plays a large part in Christmas decorations, needing only a mixture of red berries to become a close rival of the holly. It grows usually along steep, wooded roadsides or along the banks of moist gullies.

Of all the ferns the Bracken is the most widely distributed, extending in one form or another over most of the world. It grows abundantly on sunny hillsides and in open woods. The fronds have served many uses—as thatch,



stable bedding for animals, packing material, and, when young, for food. Starch has been made from the inner parts of the rootstock, and the outer parts have been used by the Indians for basket-making. The Bracken has also figured extensively in folklore and mythology and is one of the few ferns mentioned by name in general literature. It is thought that this is the "fearn" of the early Saxons, and many English towns and villages have the prefix "fearn," such as Fearnhow, or Farnhow, Farningham, etc. In Scott's "Lady of the Lake" it is alluded to in the song of the heir of Armandave: "The heath this night must be my bed, The Braken curtain for my head."

The lovely Maidenhair Fern is prob-

ably more generally known than all the rest of the ferns, but it is often confused with other plants such as the early meadow rue. It grows abundantly in dim, moist hollows or on shaded hillsides but has a certain quality of aloofness which adds to its charm. The name "Maidenhair" itself doubtless reflects the fancied resemblance of the fine lustrous stalks to a woman's hair, and the custom that long prevailed in southern Europe of washing the hair in a concoction of this fern.

An abundant plant in parts of the eastern United States is the Dicksonia or Hay-scented Fern. Its fronds have a sweet scent when crushed or drying and produce a fragrant wax which is not palatable to cattle. It grows extensively in pastures, in open dry woods, and on rocky slopes. The Hay-scented Fern is very sensitive to early frost and bleaches almost white in the fall. Then its slender fronds seem like lovely ghosts of their former selves.

Tucked away in the chinks of shaded cliffs is one of our daintiest ferns, the Dwarf, or Maidenhair Spleenwort. The fronds are arranged in a spreading rosette, all facing the light. A beautiful color contrast is seen in its dark clear-green pinnae and shining, purplish-brown, threadlike stalks.

Usually found growing near the delicate little Dwarf Spleenwort is the unusual Walking Fern. Its most interesting trait is the trick of striking root at the end of the frond, thus producing a new plant. Although the plant is evergreen the fronds are late in uncurling, and the rootlets do not develop until late summer. The new plant



remains attached to the parent frond until the following season, often then not becoming separated. It is not too common and is almost entirely confined to shady boulders and damp, mossy ledges.

Handsome and stately might be the words applied to the Common Wood Fern which springs in circles from fallen trees and decaying stumps as well as from the ground. It has been known as the "Fancy" Fern of the florists and is found only in eastern North America.

The conspicuously marginal fruit-dots of the Marginal Fern identify it at sight, and, of all our large woodland species of ferns, its fronds alone have a blue-green color. This fern is thoroughly evergreen, loving loose rocks, and spreads outward, lying prostrate like a green star, all winter.

The Bubble Bladder Fern has to be seen in its native haunts to be appreciated. For sheer grace and airiness, there is nothing quite equal to a curtain of its delicate fronds, overhanging a shady limestone ledge in the spray of a waterfall or half screening a woodland brook. Wherever it is found the slender feathery fronds, so vine-like and clinging, always have a singular grace and charm.

One of our commonest ferns is the coarse, weedy-looking plant known as the Sensitive Fern. It is usually found growing in low thickets and wet meadows. The title of Sensitive Fern probably arose from its sensitiveness to early frosts. Its weather-beaten stalks may be seen standing erect, brown and dry, throughout the winter.

Very inconspicuous and apt to be overlooked is the curious little Adder's Tongue which prefers moist meadows and grows only two inches to a foot high. At one time it was believed poisonous, injuring cattle and destroying grass. "Adder's Spear Ointment," made from the fresh fronds of this plant, was used for wounds in many English villages.

The last of the varieties to be mentioned here is the Rattlesnake Fern which grows best in the deep woods soil of shady ravines and forest slopes. It fruits in early summer and the fertile stalks promptly wither. "Sang sign" was the name given to this plant in parts of Kentucky, from the fanciful belief that the tip of the sterile blade pointed to a ginseng plant. It was called "Indicator" in Virginia for the same reason.

For more information on the identification of ferns one must go to the manuals written for this purpose. Regardless of whether we know them by name the fern is the emblem of the forest and its shade, a symbol of its cool solitude, its spirit of peace and repose; and they draw many a tired city dweller, with his rod and line, back to the distant woodlands and rocky streams.

GLUEING TECHNIQUE (From Page 11)

on the surface and no penetration occurs, is enough to form a satisfactory union of the bamboo splines. As a matter of fact, with some kinds of woods which are very hard and dense, this is the only kind of a bond which is possible. Apart from the species of wood, adhesion of the specific type takes place when the glue is too thick and/or the pressure was inadequate.

These are major considerations in the glueing process, but there are other vital factors which must be taken into account, and these concern the condition of the wood and the glue.

It is not generally known even among the professional rod-makers that

moist green wood glues much better than dry wood. Wood cells that are swollen with moisture prevents a too rapid or deep absorption of the glue, particularly a thin glue, and prevents the condition which often leads to the so-called starved joint. I do not mean to suggest that the amateur should work with green bamboo. It is absolutely necessary to work with dry, seasoned cane in order to obtain correct dimensions in your calculated design and I will show latter how to cure this defect in the glueing process.

The temperature of the wood is another consideration. This factor is more critical with some glues than

with others. In the case of hot animal glues a temperature which is too low causes this glue to chill on contact with the bamboo and prevent adequate penetration. If the bamboo has been heated too much, it becomes too dry, causes excessive absorption and encourages the starved joint condition. A temperature of about 90 Degrees F. is recommended.

With cold glue mixtures such as casein and the synthetic resins, ordinary room temperature of about 70 degrees F. is generally satisfactory.

A strict observance of these basic requirements is imperative for consistent success in rod-building. They are, by no means, the entire story of the glueing technique but they serve to point up the first great rule that I

offer to all amateurs and it is this: Establish for yourself, first, before all else, a sound glueing schedule. It will involve the major steps of proper glue consistency, the correct pressure and the correct temperatures for glue and wood. The best way to insure success is to make several test joints about two feet long tapering from a diameter at the butt end as large as the butt end of your finished rod to a diameter as small as the tip end of your finished rod. Use the recommended proportions and temperatures as supplied by the manufacturers of the glue. They are generally reliable but vary the pressure on each test joint so that you may have a choice of the best combination. Most glue joints will reach full strength within two or three weeks and then you can rip them apart to examine the results. Breaking the strips apart to evaluate the glue joint is quite an exacting process in itself. In the laboratories the technicians go to great pains to arrange the glued surfaces properly, then they are placed in shearing machines, which have accurate gauges and pressure devices. Very few amateurs can go to the trouble and expense of doing it in this

way but for all practical purposes, it can be done in another simple and effective manner. I do not use a shear block test but I have devised a rather homespun wedge test that tells me all that I want to know. Just before glueing, I use a pocket knife to point the ends of the strip for about $\frac{1}{4}$ inch.



After glueing, the resulting notches provide an accurate track for starting a thin knife blade into any one of the three glue seams formed by the six strips. Rock the knife blade up and down while pressing at the same time, then when the seam begins to open, twist the blade sideways, very slowly, and carefully and observe the character of the separation. If the seams separate with a lot of shredding and ripping of bamboo you have a good joint. If they

pop open very sudden like and exhibit a glue surface as clean and flat as the original planed surface, it means that you have a starved joint. If you want to be real scientific about it, you can mark the glue surfaces, before glueing, in little squares like graph paper, then count the number of squares which disappear after the wedge test and you will have the exact percentages of wood and glue failure by a simple calculation. As a general rule, varying the amount of pressure will correct a lot of errors in the glueing schedules. If the joint appears to be starved it is likely that this glue was too thin and/or the pressure too great. This suggests a lightening of the pressure enough to allow a layer of glue to remain on the surface. Another suggested, corrective, is to allow the glue to thicken on the exposed strip for a specific time before pressure wrapping. The degree of correction in glue consistency, pressure wrapping, and temperature is a relative matter and must be adjusted by a little experimenting.

All of the foregoing principles apply as a general proposition in all glueing techniques.

FISH HOOKS *(From Page 14)*

Ground points or "Hollow Point" models. These are carefully ground on the inside line of the point, from the barb down to the tip which gives a smooth penetrating point and makes hooking easier than with the Spear Pointed types.

A real Needle Point hook, such as the Pflueger Kirby or Limerick is the sharpest possible. It might be explained why they are slightly more costly. These are made with the point ground round, tapering from the full diameter of wire down to a perfect point. The fisherman is familiar with these I am sure, as they are largely found on spoons on some plugs and artificial minnows. I have often snagged a finger on them, and also tapped many a clever pike and muskellunge with these swift, deep penetrating styles of hooks.

After the eyes are turned the points ground and shaped properly with the file, the hook then gets its form or pattern. This is done by the machine with a mechanically deft turn and then it goes to the tempering room

where it is mechanically hardened and polished. The final operation is to give the hook its rustproof coating which runs a wide variation, including such processings as the Japanned finish, coating it with black enamel, or plating with silver, tin, gold, nickel and copper. All these finishes are produced there in the forging and finishing department of the feverishly busy big factories. Some of the hooks are "blued" by heating processes known only to the manufacturer—a mystery difficult for the layman to solve I assure my readers. Fishing Tackle manufacturers, I have found are very open minded and hospitable people, but there's always a place somewhere along their assembly line where the guest and observer of their deft machinations in making our tackle fails to follow up the line of an items completion. This then is the "mystery" we find in hook making, as in line, leader and lure manufacturing so be content to know the parts they are willing to reveal.

Some hooks are bronzed at the

finishing stage, or given a protective coating of bronze-colored lacquer and in some other cases the hook are made non-corrosive from a steel formulated for that purpose, but this latter material is used mainly on the larger hooks for salt water.

One of the things I was told by my hook making hosts when I reached the end of the assembly line was that you can get most any type of fish hook and that the well known models are all frequently changed in some of their details. Good hooks, they explain, are made with extreme care, as all fish hooks, of course, are processed. But the best hook for the fishing job, they say convincingly, is—the finest that money can buy and as in almost everything else, you get pretty much what you pay for when you buy a fish hook. So, the best grade and make of hooks is the most advisable for an angler to choose for his fishing trip. There may come a thrilling moment on that trip when an especially good grade and type of hook is sorely needed to capture that prized big fish!

FAVORITE FISHING STORIES (From Page 19)

cheerfulness, and kindly humor that was the heart of its creator.

Of all those riches, however, the most sparkling, the most polished, and best finished, is "A Fatal Success."

This story concerns the piscatorial misfortunes of Beekman and Cornelia De Peyster, two of the most amusing characters in American fishing fiction. Beekman De Peyster, the story goes, was an ardent fisherman, and determined to convert to angling his new-won bride, Cornelia.

His first attempts were not brilliantly successful. The couple was rained upon, besieged by biting insects, ravaged by all the adversities of an uncooperative nature.

One evening as they returned glum and empty-creed to the boat dock, Mrs. De Peyster overheard a fisherman exclaim to the effect that "women just don't have what it takes to become real anglers." To illustrate his point, he proudly hoisted his catch, a seven-pound lake trout, and nodded toward the dispirited De Peysters.

A woman of remarkable obstinacy, Cornelia De Peyster decided there and then she would not rest until she had brought in a larger fish, to throw the remark into the angler's teeth.

Eventually this was accomplished. Cornelia had her trout, and the outspoken angler lived to regret his words. But that was not the end. For in landing her trout, Cornelia succumbed to an incurable case of "fishing fever."

Not only was she converted to angling; she became its leading lady. For a time her husband was delighted. They fished often, and late, and more than occasionally Beekman found his catches bested by those of his bride.

But when this became an everyday occurrence, when Cornelia was not happy unless she was fishing, and when her reputation as an angler began to become known—Beekman found the whole situation a bit tiring.

Finally there came a time when he could no longer keep pace. Eventually he gave up the uneven race, and retired to his slippers and books, while Cornelia—eyes ablaze with 'fishing fever—hired guides and took out on her own.

And the last recalled of the De Peysters, states Van Dyke, Cornelia was the most fabulous fisherwoman of innumerable lodges. Poor Beekman was dimly remembered, and pitied, as her forlorn husband, who followed his wife on her angling jaunts, but who never, never fished.

* * *

Casting about in the 1920s again, I find one last story which must go into this collection before the bookends are shoved into place.

Probably the closest you can come to casting a wilderness trout stream without getting wet feet is to read Ernest Hemingway's "Big Two-Hearted River."



Unlike the other stories, this one has no definite plot, no series of events and complications which can be strung together for a re-telling.

Rather, it is a mood, an insight into a singular solitude you feel when you're all alone in big country, by yourself, with a trout stream to explore, and plenty of time to cast it.

A man can meet himself for the first time in such surroundings. As does Nick, the solitary angler of "Big Two-Hearted River." And you'll enjoy meeting him, too, and fishing with him in Hemingway's articulate, deeply-felt story.

* * *

On these five—"Tragedy of the Elm Pool," "Old Ragged Fin," "Crocker's Hole," "A Fatal Success," and "Big Two-Hearted River"—I rest my case.

Certainly the past from which they came bequeathed a wealth of enjoyable reading to the present generation of fishermen. Whether today's anglers are preserving the tradition, finding new sources of inspiration in modern fishing, remains a question only the coming years can answer.

CHRONICLES OF EARLY FISHERIES PRACTICES IN AMERICA

(Interest in fisheries problems during the last quarter of the nineteenth century was strong enough to receive attention in some of the newspapers of that day.

Attempts at introductions of fish species into new waters were apparently uppermost in the minds of early fisheries workers. The following articles, taken from *Harper's Weekly* of eighty years ago, are of considerable historical value.)

I

Of the many fresh-water fish characteristic of the continent of North America comparatively few, with the exception of members of the salmon and trout family, are of sufficient economical value to make it expedient to introduce them into regions where they do not naturally occur. This transfer has been made to a very disastrous extent in the case of the pike (*Esox*), which, although multiplying rapidly, is

at the same time the determined foes of all other kinds of fish, and soon almost exterminates them from the waters which it inhabits. For this reason some States have passed laws prohibiting, under severe penalties, except by direct permission of the Commissioners of the Fisheries, any transfer of the species in question to new localities. There is, however, one fish that is of great value, and which can be introduced without as much doubt of the propriety of the act as exists in regard to the pike. We refer to the black bass (*Grystes salmoides*). This inhabits, in one variety or another, the basin of the great lakes, of the Mississippi Valley, and the upper waters of the streams of the South Atlantic coast as far north as the James River. Within a few years it has been transferred with success to

streams previously uninhabited by it—to the Potomac, for one, where it is now extremely abundant. During the past summer some public-spirited gentlemen of Philadelphia collected among themselves a fund to stock the Delaware with this noble fish, and obtained about seven hundred, principally in the vicinity of Harper's Ferry. These were carried alive in large tanks to the Dela-

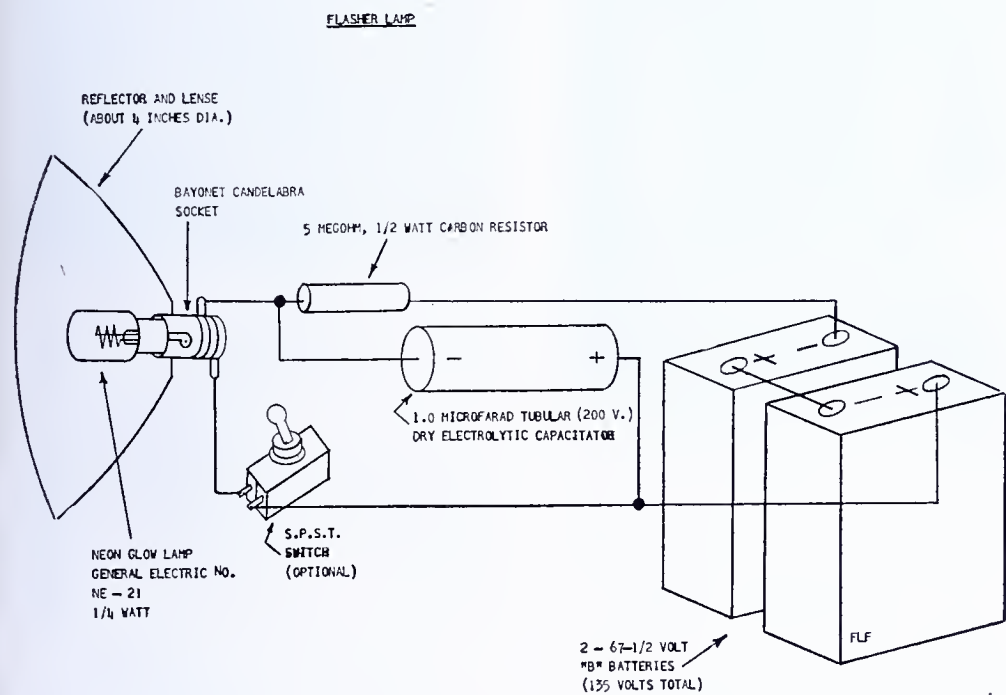
ware and deposited in that stream at Easton, about two hundred of the number dying by the way. The same party of gentlemen propose to use a surplus fund in their hands in experimenting upon the restocking of the river with shad and salmon.

(Taken from *Harper's Weekly*, Volume 15, February 25, 1871)



A Unique and Versatile Flasher Lamp for the Outdoorsman

By F. L. Frost, Jr.



Construction of the unique and versatile flasher lamp shown in the accompanying drawing should prove to be an interesting and useful project for the outdoorsman who finds that he has a few spare evenings on his hands. This lamp is an exceedingly handy gadget to have around the cottage, boat, or car. It can be used for such purposes as marking a boat dock for easy location when returning after dark from an evening's fishing trip, for marking steps, driveways, obstructions, and the like, or as a warning lamp when changing tires along the highway at night.

The light works on the principle that the current passing the resistor slowly

charges the capacitor or condenser until the voltage is sufficient to cause the capacitor to discharge through the neon light as a bright flash of short duration. The cycle then starts again. The flashing rate of the lamp is from 20 to 25 times a minute at first, gradually decreasing in rate as the batteries become exhausted. Although the illumination given off by the lamp is almost negligible, the flash can be seen for a surprising distance in the dark, particularly if a good reflector is used. The service life obtained from this lamp is one of its outstanding features: It will flash continuously for a period of more than a year. If a switch is placed in the circuit and the lamp

operated only as required, the service life is limited only by how long the batteries will withstand the ravages of time.

The parts for this lamp can be obtained from almost any radio parts store at a cost of between \$2.50 and \$3, exclusive of the batteries and reflector. The batteries will cost about \$3.50, which is not excessive considering the long service life. The reflector can be salvaged from an old flashlight or lantern, preferably the latter for it will be of fairly large diameter.

Since the lamp will be used outdoors, probably in all sorts of weather, it should be housed in a water-tight wooden box. The box can be designed according to the ideas of the constructor. A box about 6" wide by 4" deep by 6" high should provide ample space for all the parts, including the batteries. A word of caution, however. If a switch is used, make sure that it is water-tight so that no water can get into the box and ruin the batteries.

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The Editor's Angle

Dear Sir:

The Berks County Chapter of the Izaak Walton League held its annual opening of their Juvenile Fishing Pool on Saturday, July 12. The Pool is for children under 16 years of age.

On this day, the League furnished free hot dogs, rolls, and soft drinks to the kiddies; also, hooks and lines to the kiddies who can't afford them. Prizes are given to the boy or girl catching the largest fish on this day only. Prior to the opening day, the Pool is stocked with bass and sunfish from our Reading Pond. The unfortunate thing is the fact that adults make kids of themselves by fishing in the Pool prior to the opening day, robbing the children from their sport. Warning signs are torn down almost as soon as they are put up.

It remained to the true sportsmanship of a boy, 9 years of age to show our adults a good lesson on conservation. Dennis Stein, 9 years old of Laureldale, after struggling for about 10 minutes with his strike, landed a 23" carp, and to the amazement of about 150 kiddies who stood around watching him, calmly wet his hands and gently removed the hook and put the fish back in the water again. Asked why he didn't keep him, he remarked, "I like the fun of fishing. Maybe some other kid can get a chance to catch him." (A true sportsman), who enjoys the fun and pleasure of fishing for sport. There should be more Dennis Steins!

C. ROBERT BERSEN.

Reading, Pa.

Dear Editor:

The PENNSYLVANIA ANGLER is my favorite magazine. And here are a few tips.

I and many fly-tyers would like to see articles every month on tying a dry, wet streamer and nymph. It could be called "The Feather Corner." I think it would make a hit with many fishermen.

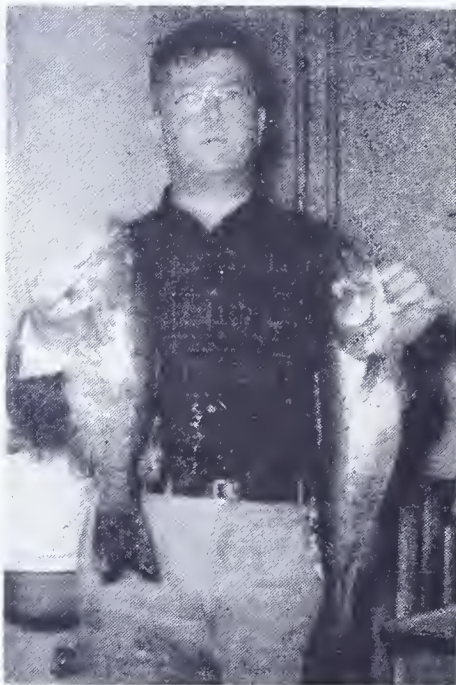
I would like to see an article on panfishing, kind of fly to use, live bait,

and where to find them at different times of the day. Could you tell me good places to fish for bass in southwestern Pennsylvania?

I wish to thank the members of the Commission who have sent me letters and literature, I appreciated it very much. Your magazine is the best on this subject, especially like the covers.

MICHAEL SULLIVAN

Pittsburgh, Pa.



RICHARD CHARLES, Harrisburg, Pa., snagged a 19-inch, 3¼-lb. smallmouth and a 24½-inch, 4½-lb. walleye while fishing in the Susquehanna on Oct. 31 this season.

CLOVER CREEK

by MARY ELLEN JACKSON

The most musical sound on earth to me
Is the sound of water, merrily
Tumbling over the tired stones—
Down to the marrow of my bones,
I love the music the river makes,
And the little brooks and the larger
lakes.

My favorite creek? its name is Clover,
It curves through meadows, up and over
Old tree trunks, laid down to die,
The creek meanders, as you and I.
Traverse its banks from dawn till dusk

Lay in our hands the empty husk
Of hours spent in rain and sun,
Are we all in when *this* day's done!
But gluttons for punishment, we rise
Another day, with starry eyes,
Come back to Clover Creek for more,
Of all that happened once before.



Dear Editor:

Enclosed is a snapshot of my wife holding a 40½-inch musky I caught August 22 on a 6-pound test spinning line in the Allegheny River below Warren. Took the fish on a Heddon River Runt, jointed silver shore minnow finish. Fish weighed 13 pounds, cleaned.

We both enjoy reading the ANGLER as much as fishing.

FRANK VALENCIC, JR.

Brackenridge, Pa.

Dear Sir:

Enclosed is one dollar for renewal of such a swell magazine, and the price is not too big. I sure enjoy reading them over and over again. It keeps me well informed on subjects I cannot get elsewhere. So thanks for a really wonderful magazine.

JOHN R. BROSTOWICZ

Philadelphia, Pa.

Dear Editor:

Congratulations on a fine fishing publication.

CHAUNCY K. LIVELY

Pittsburgh, Pa.



He's an old hand at angling . . . fly his own ties.

Dear Sir:

I am sending photos of my husband with some fish he caught last year. These five carp weighed 61½ pounds and were taken in one day's fishing in the Conodoguinet creek. My husband is a subscriber to your PENNSYLVANIA ANGLER and enjoys it very much. I add that I sure do enjoy it myself, do a lot of fishing with him whenever I can. Hope you can use the photos and we shall be looking for them in the ANGLER.

MRS. EDWARD J. MINNICH
Carlisle, Pa.



United Press photo

IT ISN'T A CHRISTMAS TREE! It's a stump lifted from the Mississippi river near La Crosse, never more to plague local fishermen who for years snagged on it, lost their tackle. Problem was solved when a diver went down, hooked a cable to the stump and a boat pulled it out. Stump holds an estimated 80 pounds of plugs, sinkers, spinners and other lost fishing gear.

Dear Editor:

My son "Chippy" caught the three bullheads from a pond on his uncle's farm in Wyoming county. Altho' the fish averaged 1½ lbs. each and ran 14 inches long, Chippy struggled until he landed them alone. My husband offered assistance but was given a curt, "No thanks, daddy!"

Your article, "Don't Take Him—Go With Him" in your September issue reminded me of this snapshot. Will be happy to see it in the ANGLER.

MRS. BOB R. SMALES
Meshoppen, Pa.



Dear Sir:

I have just now received the September issue of PENNSYLVANIA ANGLER, and needless to say I am very pleased with the magazine. I missed three issues because I didn't send in my renewal promptly, and I regret the fact very much. I read the issue from cover to back. I want to commend you and your staff for a really fine publication.

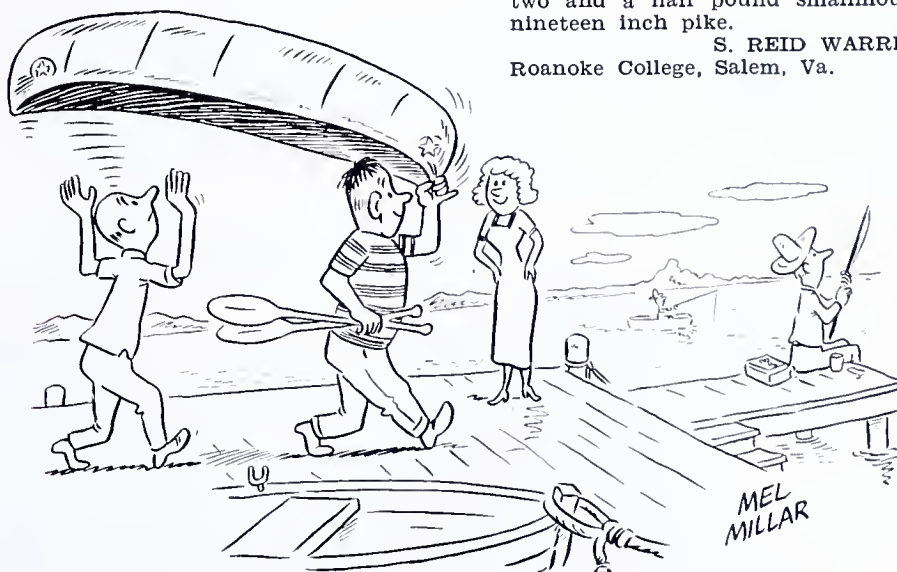
I subscribe to two other magazines, but they do not cover the information I am after in a fishing magazine. PENNSYLVANIA ANGLER tells me about the activities of my own state, and also has some very good articles on bait fishing, artificials, equipment for different types of fishing, and how to fish for Pennsylvania game fish. I don't have to skip read through a whole lot of superfluous material deal-

ing with Manitoba and Arkansas fishing methods, when I am only interested in fishing my own state.

I can always rely on Joseph D. Bates Jr. writing a good article on spinning tackle and how to fish with this relatively new type of angling equipment.

However, I haven't read any articles on small mouth bass and pike fishing on the North Branch of the Susquehanna River. I have fished this area almost exclusively for the past two summers. I fished the river near the town of Durell. This section is quite famous for Standing Stone Pool, and French Asylum. My buddies and I stayed for about a week in a small cabin alongside one of the long pools. Our fishing usually was done on one of the shorter pools in that area, and on two pretty large riffles. Many an exciting moment was spent fighting a two and a half pound smallmouth or a nineteen inch pike.

S. REID WARREN, III
Roanoke College, Salem, Va.





Dear Editor:

Here's a nice 23-inch trout I caught in Spring Creek last June while attending classes at Penn State College. With me are my daughters, Suzy and Sally.

W. PAUL CAMPBELL

Palmyra, Pa.

Dear Editor:

Here is a photo of a nice bass I caught in Bridgeport Dam near Mt. Pleasant, Pa. It measured 18 inches, weighed 5 lbs.

I enjoy the PENNSYLVANIA ANGLER very much.

EDDIE LYNCH

Scottdale, Pa.

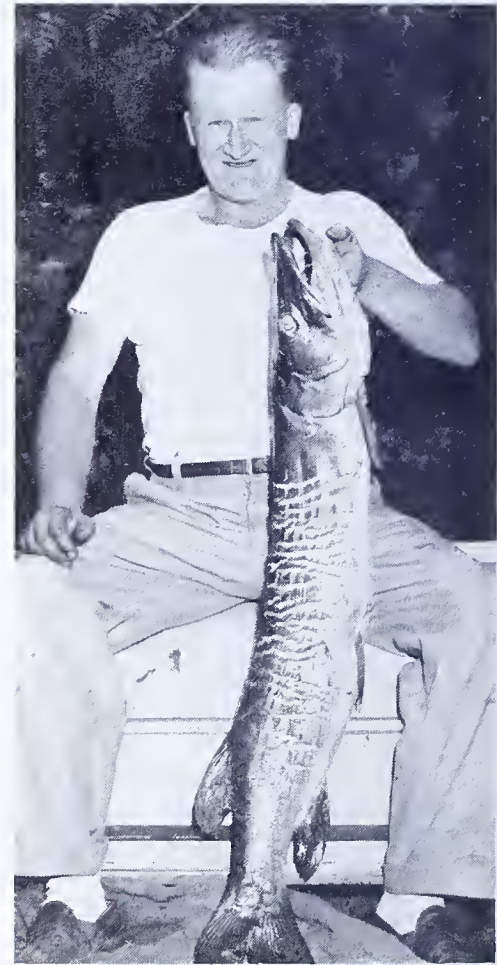


Dear Editor:

Enclosed is picture of musky taken Oct. 25, 1952 in Schenley Dam on the Allegheny river. Length 47 inches, weight 26¾ lbs., taken on spinning outfit with 6-lb. test line.

EDWARD J. BRADLEY

Brackenridge, Pa.



Pittsburgh Press photo

BIG MUSKY taken in October by Sherman Schaffly from the Shenango river is 49 inches long, weighed 28 pounds. Johnny Mock, Editor, All Outdoors, The Pittsburgh Press, maintains Pymatuning reservoir could be the haunt of big muskies since it is nothing but the Shenango dammed up. Photo gives evidence these fish are still found in the stream itself below the dam.

PENNSYLVANIA ANGLER

Page 1
Form 3526
Rev. 2-49

Read the instructions
on page 2 of this form.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, AND CIRCULATION REQUIRED BY THE
ACT OF CONGRESS OF AUGUST 24, 1912, AS AMENDED BY THE ACTS OF MARCH 3,
1933, AND JULY 2, 1946 (Title 39, United States Code, Section 233)

Of Pennsylvania Angler published Monthly
(Insert exact title of publication) (State exact frequency of issue)
at Harrisburg, Pennsylvania for October, 1952
(Name of post office and State where publication has second-class entry)

1. The names and addresses of the publisher, editor, managing editor, and business managers are:

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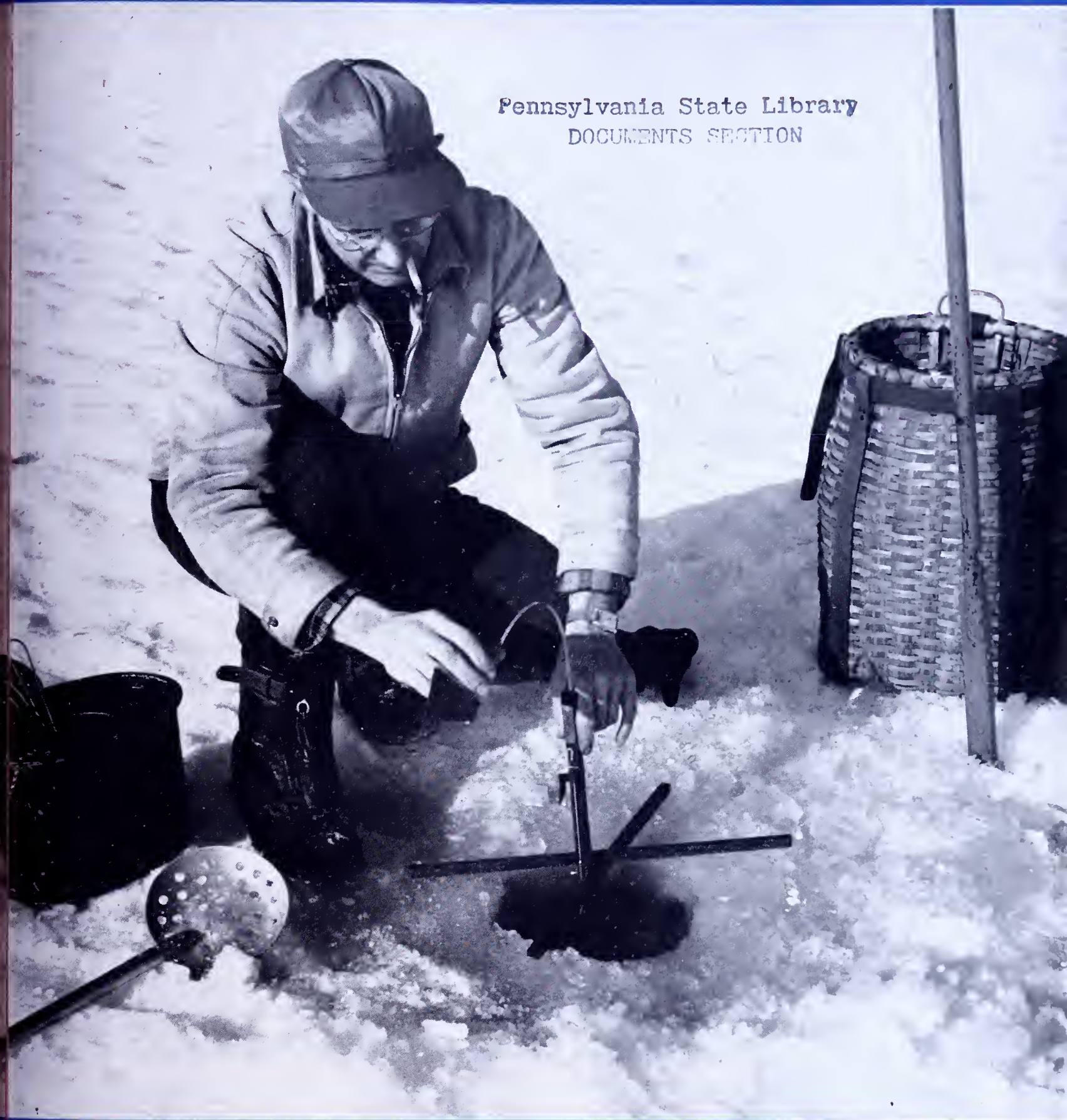
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1953

SNAPPING TURTLE · STREAMSIDE PLANTS · OLD EEL WALLS

INES ABOUT LINES · FLY TYING · GAME COCK FEATHERS



JANUARY IS KING! . . . the Big Wapwallopen struggles futilely against the powerful forces of winter, an icy grip that slows the roaring waterfall of the gorge. This scene may cause you to huddle up a bit closer to the fire but there is a certain beauty in winter's antics that defies all outdoors to do something about it. SPRING, to be sure, can release the stream from its tortured bondage but then Spring is far off, slumbering much like you and I dozing and dreaming in our big armchair . . . waiting . . . waiting . . . waiting!

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HON. JOHN S. FINE
GOVERNOR

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PENNSYLVANIA ANGLER

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THE COVER . . . ICE FISHING is
rugged business but it often pays
off with a mess of tasty perch, mighty
satisfying to the hardy ice angler.

Photo By Ewing Galloway, N. Y.

BACK COVER—

No "June in January" here but there's
beauty in this portrait of a trout stream
painted by winter's artists.

Photo by Don Shiner



George W. Forrest, Editor

1339 East Philadelphia Street, York, Pa.

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Figure VI. Portrait of a snapper. Don't let the tranquility fool you. That head is lightning fast.

the

Snapping Turtle

Identification, Life History, and Status of the "Snapper" in Pennsylvania

By Keen Buss

Fishery Biologist, Pennsylvania Fish Commission

THE snapping turtle (*Chelydra serpentina serpentina*) is a subject for much debate. There are some people who wish it would become extinct; others wish that its numbers would be conserved. Why are there these differences of opinion? What do we know about the beneficial or detrimental qualities of this reptile which may help us form sound conclusions regarding the status of this animal in our state? First, let us study the facts that have been ascertained by biologists and then—only then—base our viewpoint upon these facts.

Identification: To many people the snapping turtle is a common sight and easily distinguishable; to others, it may become confused with the many species of the common harmless pond turtles. Therefore, it is necessary to identify this creature for all.

Like all other turtles it has both an upper and lower shell. The upper or dorsal shell on the snapping turtle is called the carapace; the lower or ventral shell is called the plastron. It is this plastron which is distinct in the snapper. This lower shell is narrow and cross-shaped, leaving the under parts

partially exposed. (Note this structure on the larger turtle in Figure I.) The tail has a very distinct median dorsal crest, as shown in Figure II.

Perhaps another very conspicuous characteristic is its very vile temper while on land. It will continually snap at every object within reach until replaced in the confines of water. This trait is noticeable even in the newly hatched young.

Size: The average adult snapping turtle in Pennsylvania averages between fifteen and thirty pounds. Turtles thirty to thirty-five pounds are uncommon and over thirty-five pounds are very rare. This may shock many fishermen who swear that most of the specimens they have seen are forty, fifty and even sixty pounds; but actual weights on hundreds of specimens in this state show that turtles above thirty-five pounds are rare. The oft-repeated story of how a man once grew a snapping turtle up to eighty-five pounds in a swill barrel is a rare exception indeed. It is doubtful that any turtle in the "wild" state would ever reach these proportions.

Age: It is assumed by many people that this species of turtle when it becomes an adult and weighs about thirty pounds must be fifty or one hundred years old. There are no accurate data on the age of "wild" turtles, but snappers which have been kept in captivity have reached the age of twenty years. Probably twenty-five years is a maximum age for these reptiles.

Distribution: This most widely distributed of all turtles is found from the east coast of the United States to the Rockies, and from southern Canada into southeastern Mexico. It is found all over Pennsylvania where the water is suitable enough to support aquatic life. Fossil remains found in Maryland show that this creature has been an inhabitant of eastern United States for at least 10,000 years.

Mating: Mating may occur from April until November. In the mating act the male mounts on top of the female and grasps the edge of her carapace with the claws of all four feet. The tails are twisted so that the vents of both sexes come in contact. The writer witnessed this act, which he assumed to be the mating act, in a turtle trap in northwestern Pennsylvania during the past

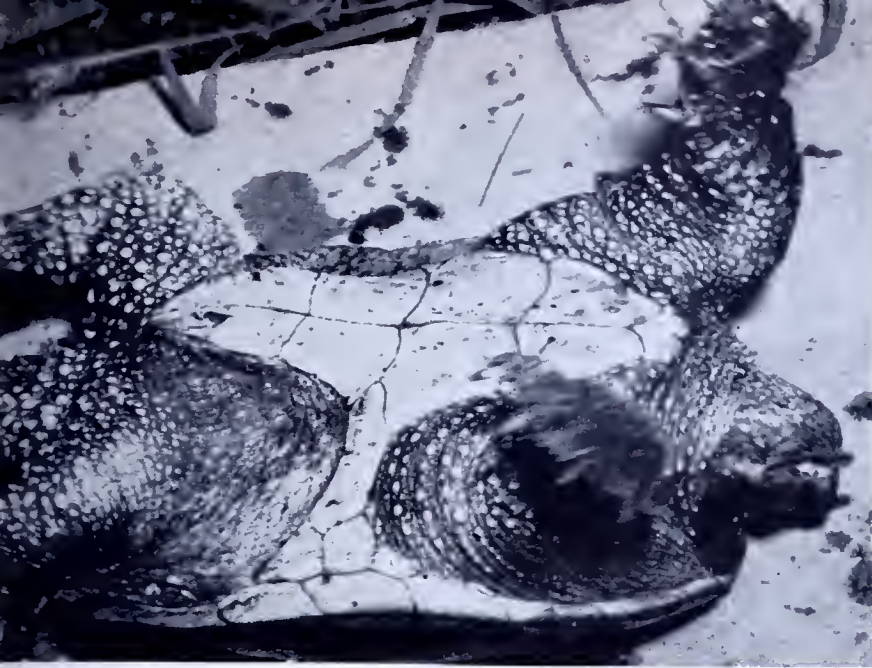


Figure I. Forced into this most hated of positions, the turtle exposes the characteristic cross-shaped shell.

Figure II. This turtle is held at the right end both to expose the median dorsal crest of plates on the tail (arrow) and to protect the handler.

summer. Fred Ralph, dean of turtle trappers in this section, claims that this occurs often in a trap in which there are two or more turtles. He, too, assumed this to be a mating procedure.

Turtles have been seen in the most ferocious kind of combat. Whether this is battle for the graces of a female, or a battle for their own particular range, can only be left to conjecture.

Nesting: Information on the nesting habits of the snapping turtles seems to be vague and confusing. Mr. J. L. Zettle, superintendent of the Pleasant Mount State Fish Hatchery, who is a keen student of biology, reported the following information.

"I have watched the turtles making their nests and laying their eggs over a number of years and here are my observations on them.

"The female turtle selects a sunny place that is sandy or where the soil is loose and she then burrows out a hole that will be large enough to hold the eggs. While she is depositing her eggs in the nest she has her tail in the hole and keeps working it around with a fan-like motion. This packs the eggs and also covers a small amount of earth over each one. After all the eggs are laid, she sprays water which she has retained in her body over the mound of earth removed when making the nest. She mixes the water and earth with her tail and then, again using her tail, covers the hole with the mixture and tamps it down. I know that under favorable conditions it takes turtle eggs about three months to hatch."

Other workers in this field have reported that when the female withdraws from the nest the soil which has collected on her shell falls in and covers the eggs and she departs without a further effort toward covering her eggs. Still other workers claim that they



Figure III. The female snapper didn't intend it this way, but here are her eggs recently removed from the nest.



have noticed the turtle scratching with her feet to cover the eggs and nest.

Eggs: The eggs are usually laid in a nest which may be varying distances from water. Eggs may be laid in most any type of soil, but moisture and sunlight are necessary if the eggs are to hatch. The eggs average about one inch in diameter and have a tough, leathery, white shell (Figure III). The average number of eggs laid is probably about twenty, but clutches up to 80 have been observed.

Mr. Zettle again has sent us a report on egg numbers as he has observed them. His report follows.

"I took eggs from a nest on June 17. There were 37 in this nest. At other times I have taken from 32 to 42 eggs from a nest. As to the actual length of time that it takes to lay the eggs, I cannot accurately say. In my judgment, they are laid within an hour. I have no actual proof of this, but about four years ago I picked up a snapping turtle that was on her nest, put her in the trunk of my car and drove eleven miles. During that time the turtle had laid five more eggs. This has partially convinced me that when the turtle has started to lay its eggs it will continue to do so even when disturbed."

Embryo: As the eggs develop, the yolk sac is attached to the body through the plastron or lower shell (Figure IV. This egg was approximately eleven weeks old at the time it was opened and the young turtle removed.) If the yolk sac is removed, the hole in the plastron where the yolk sac was attached will pulsate with each breath of the unhatched turtle.

The vicious nature of the snapping turtle will assert itself even in the embryo state. When removed from the egg at a late stage of development the turtle will snap at any object which is thrust before it. Apparently this instinct is developed very early.

Hibernation: In hibernation the turtle seeks winter shelter in holes in banks and the mud of the lake or stream bottoms. A favorite method of turtle collectors is to probe such areas with metal hooks on poles.

Although aestivation has not been accepted as a proven life activity of the snapping turtle, several observations by biologists of the Pennsylvania Fish Commission would seem to indicate that this may occur. Figure V is a picture of a snapper removed from the mud of Greens Valley Dam during an extremely dry period. This turtle removed himself several yards from the edge of the receding water line and



Figure IV. Should we call this a "Caesarean" since this eleven-week old embryo was removed from the egg to show the yolk-sac attached to lower shell (arrow).

dug into the mud to the depth of nearly a foot.

Hatchlings: How the newly-hatched turtles find water has long been a question. Many theories have so far been advanced. One theory is that turtles move toward the most open horizon. Another theory is that the young turtles move downhill; therefore they eventually would reach water in most cases. The third theory is that the position of the sun effects the movement in the direction of water. It has been proven that sometimes the turtles do not always go to the nearest water, but in a direction which will in due time take them to their future habitat.

Feeding Habits: It was originally thought that snappers are entirely carnivorous. However, it has been more recently proven that the percentage of animal and vegetable matter in a snapper's stomach is about equal. Among the food items taken by this turtle are fish, insects, frogs, small birds, snails, carrion, vegetable matter, and many other forms of animal life too lengthy to mention.

Because of its large size and ferocious appearance, most of us think of the snapper as a killer with an insatiable appetite. However, studies by Lagler in Michigan have shown that, on an average, not more than one game or panfish is eaten per day by these large reptiles. He also points out that the game and panfish eaten were less than



Figure V. Fighting mad, this fellow was removed from the mud in apparent aestivation.

legal size and that these smaller fishes are very abundant in nature. In other words, they have no appreciable effect

(Turn to page 25)

THE ARCHER FISH

—Finny Robinhood

By WILBERT NATHAN SAVAGE

All Photos Courtesy New York Zoological Society

EVEN the most gullible angler in all of Pennsylvania's 45,126 square miles probably would wince at the impact of this thumbnail sketch about a very peculiar fish—if pictorial proof of its mystic prowess in firepower was lacking. But whether the doubters are in Pennsylvania, or Missouri, or anywhere else, it's a safe wager that this story isn't one of the whoppers like the favorite fish "thrillers" periodically related by Cousin Charley and Uncle John. This one is backed not only by photos, but by witnessing scientists, bug-eyed cameramen, and a non-pro audience.

For two hundred years travelers to regions extending from India to the Philippines persistently brought back exciting tales of a strange fish that bagged its prey by shooting from its mouth a jet of water with incredible force and accuracy. Few people believed the stories, but today we know the stories were in most cases true. The colorful little archer fish is a phenomenal marksman, and there's no doubt about it!

THE TARGET. Thin stream of water ceases the air beneath spider.



In a test conducted at the New York Aquarium, the clever archer shot thread-thin streams of water at various objects, and almost always a direct hit was recorded. Even cigarettes were extinguished by the piscine Daniel Boone!

When a hungry archer sets out in quest of food, he scans every sprig of overhanging vegetation with keen-eyed authority. If he spots an insect of any kind, he maneuvers into position, carefully compensates for refraction, and fires a watery charge at his selected victim. If the object is less than twelve feet away, it very likely will be dislodged and caught by Mr. Archer. At a four-foot range, the fish is always one hundred per cent accurate, and of this precision one seasoned naturalist remarked: "To achieve such accuracy in allowing for the deception of target location, as it must appear when looking up through water at an angle, the fish certainly possesses a truly extraordinary trigonometric range-finder in his tiny brain" . . .

How does the fish muster such power and accuracy? The accuracy is an unsolved mystery shared only by Ma Nature, for naturalists say the archer's distance perception is astounding in every studied detail. But the power is created when it claps down its gill covers to force water through the mouth.

The roof of the mouth is equipped with a tiny groove, and when the tongue is applied to the upper section of the mouth, a thin straight tube is formed. With the flexible end of the tongue acting as a valve, effective pressure can be built up for delivery of the shot.

Prey as large as a lizard has been knocked down by the archer. But if the food morsel is too far away or a bit too large, the archer senses the fact and refuses to fire. Rippling water and other disturbances tending to distort invariably fail to upset the accuracy record of the finny phenomenon; and even young archers, who



DIRECT HIT! . . . and the eight-legged prey comes tumbling down. Actually, the stream of water is a compact series of droplets.

learn to shoot at short range when they are only one inch long, possess this discerning wisdom.

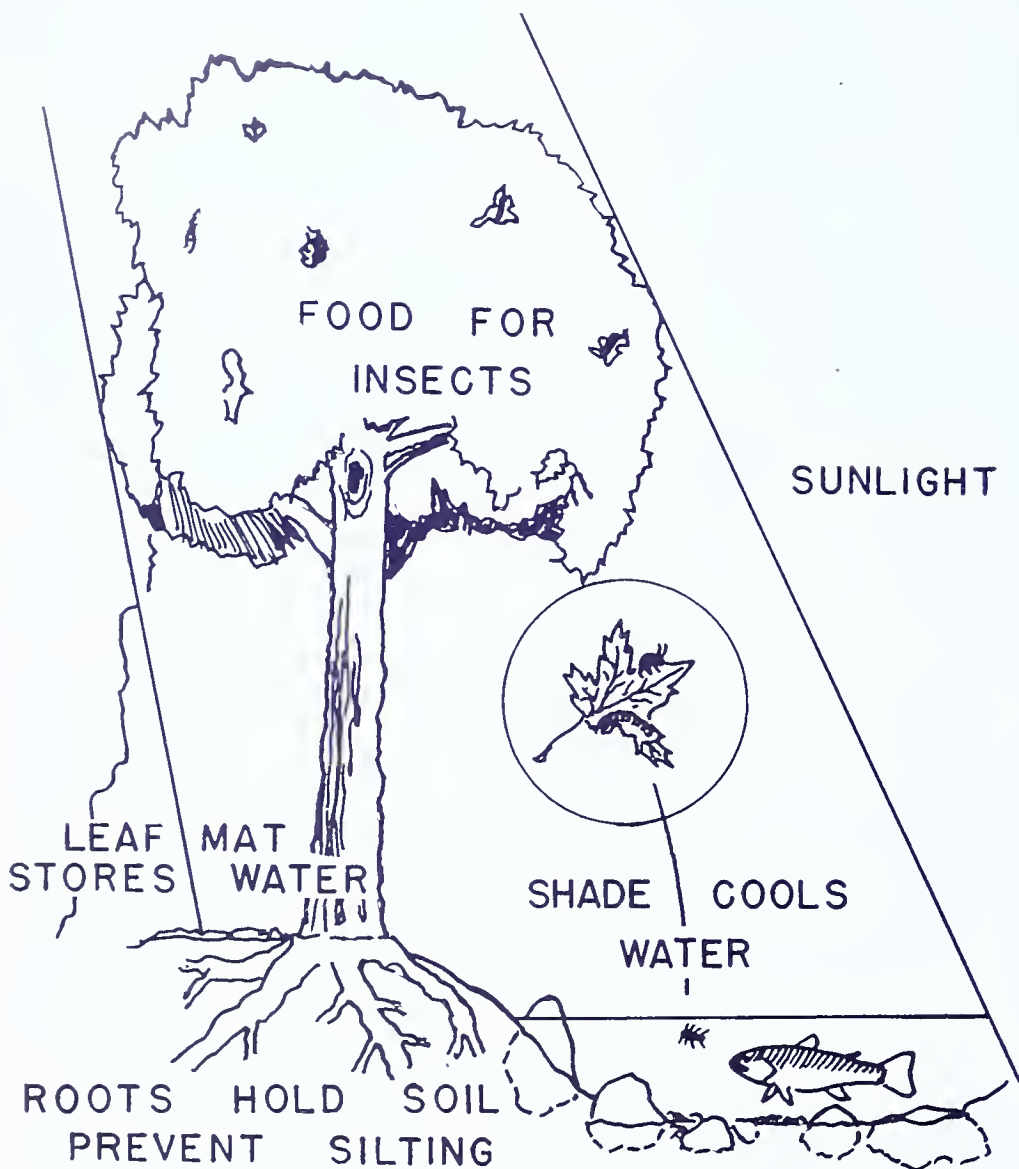
Although the archer's general make-up may proclaim that, according to certain rules which interpret the phenomena of nature's force and energy, he shouldn't be able to shoot at all, he is going right on defying the conventions with feats that frequently flabbergast both the trained and the lay observer.

SPIDER FALLS . . . and hungry archer fish leaps out of the water to snap it up.



Streamside Plants

can make



EVERY pound of meat owes its being to many pounds of green plants. To produce a creel of trout requires billions of algae, microscopic green plants which feed tiny animals, insects and eventually fish. The fisherman who understands this fundamental relationship known as a food chain is going to concern himself with those links which spell good fishing.

One of the most important links, of course, is the fish and the water life. Many kinds of pollution and silting affect this link, hence the growing concern of fishermen for the pollution problem.

Important as it is, pollution is only one factor affecting water. An often neglected factor in the production of clear, cool, and steadily-flowing water is the vegetation both near and far from the stream. Cutting of forests destroys the water-holding capacity of the land under it. Rains on cut-over land rush immediately to the nearest stream carrying loads of silt which would otherwise be retained by mats of vegetation on the forest floor. The striking force of the raindrop is unchecked where there is no vegetation to "bounce it" before it strikes precious topsoil. What little water seeps into such bare soils is soon evaporated by unchecked sunlight, for there is no shade where there is no forest. The immediate shade cast upon running streams holds temperatures down to levels where fish life does best. When streamside vegetation is cut, shade disappears. Temperatures go up and fish populations go down.

Fishermen between strikes on their lines may have seen some of the streamside plants which line the banks



TAG ALDER



ELDER



SKUNK CABBAGE

Make your fishing

By Stephen Collins

Biology Dept.—Rutgers University

Sketches by The Author

and shade the waters. These plants, unlike the lake plants rooted in rich silt deposits, often grow in gravel and on sandy soils.

Indeed, many of the streamside plants have interesting woodcraft uses, some able to furnish emergency fish-line (swamp milkweed), others juicy berries (elder) and drinks as well as basketry material (willows). The illustrations in this article should acquaint the fisherman with the most prominent Pennsylvania streamside plants.

Tag Alder also called American or green alder. Its twisting, crooked, skinny trunks never are thick enough to make this shrub big enough to classify as a tree. Its pendulous catkins first appearing in March show its close relationship to the birches; both are in the same family. This shrub is a nuisance to the fly fisherman because of the obstacle it offers to casting, but the shade cast by its overhanging branches and the subsequent cooling effect on water can hardly be overlooked. Although inner bark of this tree may be a potential emergency food, its use by farm boys as a substitute for tobacco stains in saliva is the only direct use to man. Beaver at times may utilize this as a food when their staple tree (aspen) supply begins to fail. Certainly it is found in beaver dams.

Sycamore or buttonwood. Along the wider streams the sycamore is easily recognized in its maturity because of the "camouflage" or mottled appearance of the bark of the upper branches caused by the rapid growth of the inner bark and the peeling off of the old. The sphere-like fruits that hang down can be seen still attached to the

tree in later winter. The nutlets will later be spread by wind. Often the heartwood of sycamore rots out leaving an ideal "hollow" for coons, possum and other den dwellers. The liars' club tells of felling some of the larger trees across a river and driving cattle through the hollow trunk to the other side. "Of course," said one, "in some of the larger trees a man has often lost a dozen head when they wander into some of the larger hollow limbs and can't find their way out."

According to some authorities the sap of this tree has been made into syrup and sugar by the Abenaki Indians. Lacewood is made from the tough, fibrous wood. Until the recent widespread use of cardboard in cigar boxes, this wood was favored because it did not impart to the tobacco any odors of its own. It has been used in furniture and making plywood. In cities the tree is an undesirable resident where water pipes are present, for its thirsty roots will grow into the pipes, finally plugging them. When crossed with other "plane trees" the sycamore is otherwise excellent in cities where the grime in the air would choke an ordinary tree.

Buttonbush or globe-flower. Perhaps a beginner might mistake this small shrub for a young sycamore because of the sphere-like flowers, but the opposite (rather than alternate), smaller and unlobed leaves of this shrub separate it readily from the larger tree.

Swamp milkweed. In more open areas this milkweed is found near streams. The fiber which can be stripped from

the stem of winter-dried plants can be utilized to make emergency fish line, makeshift shoelaces or simply cord for tying together an emergency lean-to. Everyone who travels the woods should know this woodsman's trick, for natural cordage is indispensable in emergencies. The author has seen people twist these milkweed fibers into a cord far stronger than a similar thickness of cotton twine.

Indian women evaporated the liquid found on the swamp milkweed and other milkweed blossoms which they collected in the early morning when the dew was still present. The resulting product was a natural brown sugar.

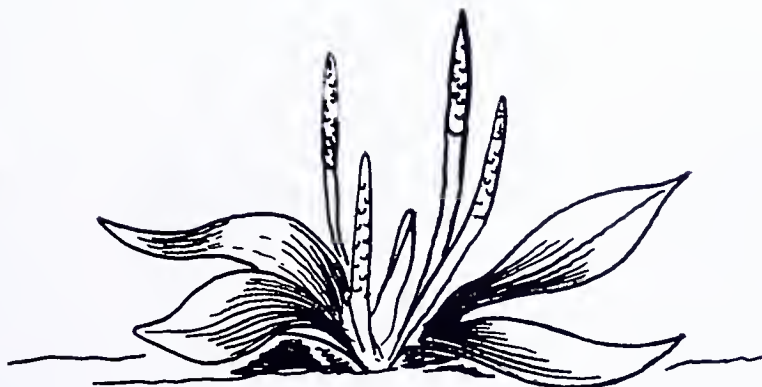
Elder. The common elder is esteemed by some while other people find its fruits insipid. Wines, preserves, pies and soups can be made from this plant. Its near relative, the red-berried elder, found more in mountain areas, is of no such value. The trick in making



SYCAMORE



MARSH MARIGOLD



GOLDEN CLUB



YELLOW BIRCH



SPICE BUSH

pies is to avoid the fresh fruit. Use oven or sun-dried berries, which after storage are supposed to rival huckleberry for pie-making. When properly prepared in batter even the white blossoms can be eaten. The leaves of this plant are compound, that is, composed of many leaflets. The white pith in the flimsy, weak stem separates this from the dark-pithed red-berried elder.

Skunk-cabbage. One's nose knows this plant where there is possibility of confusing it with others. Walking through a patch or bruising the young shoots releases the "skunky" odor for which this plant is named. The Indians made a flour by leaching the powdered roots. Young shoots boiled in several changes of water and served with butter and vinegar are acceptable to the palate, but beware confusing this plant with the deadly hellebore or Indian poke which has pleated leaves. Fishermen will probably be content with the appearance of this plant as just another sign that spring and fishing are around the corner.

Golden Club. Closely related to skunk cabbage and jack-in-the-pulpit is the golden club often with leaves floating on water. After the summer flowers are no longer yellow the seeds can be dried, boiled and eaten as peas. Animals eat the spring leaves. Rarely, after a warm spell, this plant will flower in the fall as well as springtime.

Marsh marigold. Boiling this brookside flower and its leaves expels the poisonous properties. It then becomes fit for eating as a green after boiling in several changes of water. It is, however, questionable that any vitamins

would remain behind after such treatment. The pickled flower buds have become a substitute for capers in this country and in Europe. This spring plant finds brook beds the proper place to grow. April is the month of blooming in Pennsylvania.

Spice-bush. As the trout season opens in Pennsylvania a large bush whose small, round winter buds were closed suddenly takes on a yellow green appearance. It is flowering. The summer leaves when crushed are fragrant and



BUTTONBUSH

have been used with the broken twigs to make a fragrant tea. This is not surprising for its relative, the sassafras, has long been used to brew tea since Colonial time. By early October the fruits will have turned bright red. It is a rare bush which holds berries through the winter. The writer has observed that birds promptly clean out the fruits in usually less than a week or two after ripening. This is probably the first choice with birds of all the fall fruits. Colonists dried the berries as a substitute for allspice.

Willows (pussy willow, black willow and others). Willows grow rapidly and readily. Fence posts made of this wood have promptly sprouted when driven into damp ground. The long slim branches and twigs or young shoots can be stripped of leaves and used in basketry. Streambank erosion is quickly halted when a stand of young willow becomes established. Of the many kinds of willows, the pussy willow is perhaps best known. The black willow is a common tree along stream banks. The weeping willow is an introduced Asiatic tree that adapts readily to our pond and streamsides. Willows, because of the moderating effect of water on temperatures and perhaps because of their tendency to grow near water are the first to leaf out in the spring and the last to shed leaves in the fall.

Cardinal flower. Fishermen who have seen this showy red flower will seldom forget it for it is one of nature's more intense colors. For the observer with patience, humming birds will perform their dance of cross pollination before the plant. Few insects have the capacity to do the job done by the tiny birds. Cardinal flower is protected against picking by many states. It should be left strictly alone. While no direct benefit to fish has been found for this plant, the splash of color which it adds to a brookside justifies its existence.

Yellow birch. Rainy day? No dry kindling for your fire? Strip the horizontally peeling pieces of papery bark from this tree (no cutting necessary) and even though covered with rain drops, it will burn. This tree is an important lumber tree as is the white or canoe birch which is often found near water. The gray birch of old dry fields and the black birch of second-growth forests are other members of

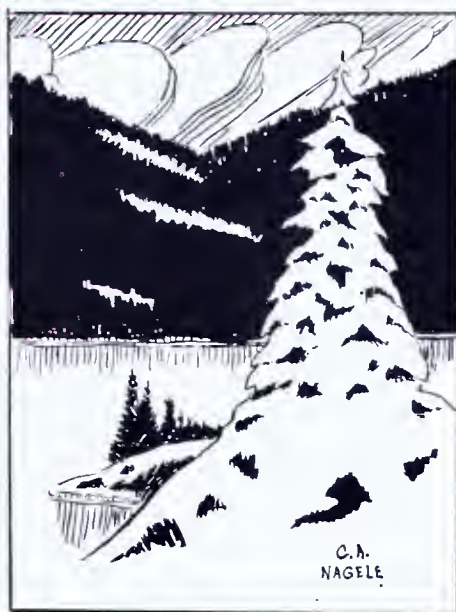


PUSSY WILLOW

this family differing in their choice of growing sites. A study of preferred tree and shrub growing sites and the reasons behind such choices is basic to a program of forest, wildlife or watershed management. A fisherman who wishes to save and intelligently conserve those resources contributing to both his sport and more importantly to the welfare of his nation needs to understand the factors which make vegetation adapted to land. Why not start at your own streamside by observing these twelve prominent plants? It is as impossible to divorce plant life from water as it is to divorce water from the welfare of fish. When more fishermen throughout the nation learn this basic truth they will learn how important it is for them to watch like hawks those problems such as industrial pollution, forest cutting programs, fire protection, dam building projects and others which hinge upon or affect the nation's water supply directly or indirectly through vegetation.

FOR THEM

By Eugene Burns



going for about two hours. Then move the fire back about two feet, dust off the rock, and put on your trout. These have been scrubbed with salt, washed, dried, a sharp score made with a knife along the backbone where salt has been rubbed in, and the backbone cut again to prevent curling. The rock's heat will cook the trout's underside while the heat from the fire will take care of the topside. When the skin is slightly burned, pick out the bones, and swallow.

You can also do it this way—look, without dishes. Wrap the seasoned trout in clay and bake it in the hot ashes. When you break away the clay, it will take the skin along with it and lay bare the flesh in all its succulence. But, if you are squeamish about clay, wrap your fish in thoroughly wetted leaves and then cover the package in mud and bury it in hot ashes and coals. They

WHAT LIKES

frying, cover it with the tin plate in which they will be served and finish them gently over a slow fire. This drives the heat through the fish and moistens them slightly. To prevent a very fresh trout from curling when frying, make a cut into his backbone.

Serve your trout immediately after the brown butter has been quickly poured on the trout and while it is still foaming hot. It tastes best of course when it is cooked within sound and sight of a tumbling waterfall, backed up by some green-clad mountains.

For a moment, let me forget about fish—I'd like to put you next to a rib-tickling concoction that comes mostly out of a can. You're right, the old stand-by, pork and beans. But notice the difference. First cut up some squares of sliced bacon. Then slice up a large onion. Brown the bacon, brown the onions. Then put in the beans—at least two cans of them. Season with salt, pepper, soya sauce, catsup, Worcestershire sauce, molasses, lemon. And to awaken sluggish taste buds, you might add some Ajinomoto—that's Japanese for Accent. Just a pinch.

When dishes have been left behind, it's no trick at all to cook a trout on a flat rock. Find one about three feet in diameter and prop it up against a fire at an angle of about 45°. Keep the fire



FISH

will be finished anywhere from three-quarters of an hour to an hour and a half, depending upon the size of the fish and the coal-bed.

As a ranger, I used to fix up grouse that way too and they are wonderfully good, too. Rub clay into the feathers and make a big ball of it. Rake out the

(Turn to page 26)

TWO weeks ago I was willing to say that there's no new way of cooking an egg, and then I tried out a new wrinkle—and what an improvement it made. Like most men, I like my eggs fried in butter. But have you ever browned the butter before you cracked in the egg? Then turn down the heat and just before the egg is ready to serve, cover it with a lid so the moisture doesn't escape. Well try it.

What's that got to do with frying trout—which is what this article is about mostly? Just this: there is always someone who will come up with a new wrinkle and in my 30 years of cooking fish, I've learned several.

The trouble with most anglers is that they confine their fish-cooking propensities to the diameter of a frying-pan and bacon grease. However excellent a warmed platter of trout may be, even when you substitute butter for the bacon grease, a steady diet is much too rich—and anyway, there are at least a dozen other ways a delicately-flavored trout can be cooked to extract the maximum saliva.

But I am not one to minimize a dish of trout fried in butter. If you like them too, try this on for size:

Needless to say, wild trout is most toothsome when caught, cooked, and fried the same afternoon. Here's how: Wipe the trout; to get the seasoning to penetrate into all the flesh, score them with a sharp knife along the backbone and rub it in; dust them with flour which has been salted and peppered and place them into a heavy frying pan in hot butter. When done, arrange the trout on a tin plate and pour over them some brown butter which has been heated in the frying pan until it begins to smell of nuts, and then sprinkle lightly with fresh lemon juice. Sorry, fresh out; haven't another trout left for your third helping.

Now in frying trout, let it occupy your entire attention: trout are delicate by nature and cook quickly. Too great a fire will burn the skin and spoil both flavor and appearance; too slow a fire will make them soft and soggy. Properly done, the trout is a beautiful golden brown! For the last minute of

OLD EEL WALLS

Watermarks of A Bygone Industry

By Don Shiner

A DRIVE along the rivers of Pennsylvania will reveal large triangular shaped rock formations which are, or are remains of, eel-walls, a part of an industry that has flourished many years. It is an industry that is, however, disappearing from many of our rivers as one of the results of our continuous progress in Pennsylvania, just as the canal systems, the horse and buggy and blacksmith shops have passed from the scene. Though these old industries have left few traces of their existence, the eel fishermen have left trade-marks on streams that promise to remain for years to come.

These old walls, the remains of which are clearly visible during periods of low water, were built with tons of rocks and stones. Wooden baskets were placed at the narrowest portions and the V-shaped walls funneled the migrating eels into the traps. Each au-

turn was a period of lively activity for anglers when the eels began their migration to the ocean.

While eel fishing has disappeared in the Susquehanna River, fishing for the eel still remains on a limited scale in others, the Delaware being one. There, just as on the winding Susquehanna, eel walls are built by fishermen during

the summer months. Sometimes these hearty fishermen labor an entire season piling rocks until huge walls, measuring six to eight feet in height and some 600 feet in length, are erected firmly enough to withstand the tremendous pressure exerted by the oncoming water.

Old eel fishermen tell how great an



Eel walls are made in a triangular or V-shaped formation. High water often damaged the walls, making it necessary for the fisherman to lay new sections. Successful walls are made in shallow portions of the streams, especially where fast riffles predominate.



engineering task it is to build a good wall. Built too tightly with too narrow a mouth, the wall hinders the water in its flow, making it unproductive for catching eels. The eels follow the strongest current or the strongest draft in a river as old timers call it, and should the eels enter a section of slow moving, sluggish water, they immediately pull out for the faster current. A well built eel wall should funnel the water through at a rapid pace creating a strong draft within.

Tons of rock and stone were brought on large barges to the site during the course of a summer in the construction of these walls. Stones weighing as much as 300 and 400 pounds were rolled into place. The finished wall backed up water four and five feet higher than that found on the outside with the center holding as much as 10 or more feet of water. The flow of water through the mouth was sometimes so swift that it would tear the clothes from a man as he struggled to reinforce the walls or anchor a bed plate in place which later would hold the eel basket.

Not all sections of a stream are suitable for building these walls. The bottom must have a decided slope, be shallow and have riffles predominating. It was because of these ideal stream conditions that existed in the Susquehanna River between the little towns of Nescopeck and Wapwallopen that led to such a great concentration of eel walls there. Nowhere else in this river did so many eel walls exist, and that

section had perhaps the greatest concentration of walls to be found anywhere on the North American continent. Between these two little towns, a distance of five miles, there were as many as 39 eel walls in operation at one time, 28 of them being within a distance of two miles! That section of the Susquehanna became known for its heavy concentration of eel walls and eel fishermen. Old timers say that fishermen farther down the river to and including those found at Harrisburg and points beyond, complained bitterly that the Nescopeck fishermen were catching all the eels. This of course was not true for each tributary that emptied into the river farther down stream brought more eels with it during the annual migration to the spawning beds in the sea.

The eel, a fish with as many mythological origins as the evolution of man, is indeed a most curious creature. Man, until recent years, was mystified at the lack of mature genitals and absence of eggs in the eels. Many speculated about the origin of these elongated members of the fish clan. Some claimed the origin to be from horse-hairs, others spoke of eels as coming from the bowels of the earth, or the morning's dew. A more recent discovery proved that eels spawn in definite locations in the ocean. As recent articles in the *ANGLER* pointed out, the eels of both the American and European continents commence life in the Sargasso Sea region. The tiny young eels appearing

as invisible ribbons, travel toward less dense salt concentrations and eventually enter fresh water streams in which they mature. Yearly migrations are then made down stream for another phase of the never ending cycle.

Catching eels in improvised baskets in these walls held a romantic adventure for those hearty souls who ventured astream on the cold, friendless and sometimes wild torrential rivers



An eel fisherman's house boat at anchor. The flat barges which were used to boat stones to the wall were fitted with shanties or cabins each fall and the fishermen spent the nights within while tending the walls during the eel runs. Cabins were fitted with bunks, table, coal stoves.

The mouth of the wall must be cleaned constantly of small rocks and stones so that a strong 'draft' of current is had within the walls. An unwritten law among eel fishermen is that whoever operated the wall the previous year automatically had it for the new year. Ownership of walls were sometimes sold from one fisherman to another.



COMMONWEALTH OF PENNSYLVANIA
1937
EEL CHUTE LICENSE
NO. 116

An eel wall or eel chute license No. 116 issued in 1936 to Sterling Souder. The tags, made of copper were tacked to the eel basket for identification. Aside from eel fishermen, few anglers have ever seen these tags.



Ott Parr of Nescopeck stands beside his old cement eel box. Those eels caught in his wall were boated to shore and stored in this trough which was kept filled with running water. Eels were kept alive for weeks until the last was sold. Back in the '30's, eels brought 15c a pound.



Sterling Souder of Nescopeck holds two big eel skins, which measure some 50-inches in length. Eel skins were used in numerous ways, from shoe laces to cures for rheumatism. Good eel fishermen could skin an eel in less than 25 seconds!

during the autumn months of the year. Just after a hard frost the eels would make their run and a slight rise in the river would bring eels down in uncountable numbers, but every night would not find them traveling. It took dark, cold and windy nights during the periods of dark or quarter moon to move the eels. Some nights only a dozen eels would be caught, but on others, literally tons of them were funneled through the eel walls to the baskets. Two to three hundred eels weighing from two to four pounds each were considered an average night's catch, but it is known that Derb Swepenhiser, of Nescopeck, caught 2,700 eels in a single night! With eels selling for 15c a pound back in the early '30's that meant a sizable sum of money for one night's operation. Old timers used to say that, "It's a poor eel wall that won't catch the winter supply of potatoes!"

The narrowest point between the V-shaped walls served as the mouth and it was here that an ingeniously constructed basket was anchored. The basket, built entirely of one-inch slating material, measured up to 10 feet in width and 20 odd feet in length. It was, in reality, a series of six or eight steps with each step or fall, as they were frequently referred to, being constructed slightly higher than the preceding one. The eels were trapped in any one of the steps or falls depending on the height of the river.

These falls were simply drop-offs for the eels to go over and extending slats prevented them from escaping. Doors, forming the bottom of the falls, were opened during the daylight hours and closed during the nights when the eels staged their migration down stream.

But all were not eels that came into the baskets. A rise in the river brought eels, but also an assortment of debris

which caused endless toil for the fishermen in keeping the basket open. Ott Parr, a top notch eeler of Nescopeck, recalls catching barrels of cabbage, crates of oranges, old shoes, chickens, tin cans, bottles, boards, sheaves of wheat, an occasional boat, and literally tons of coal, gravel and stones. The swift river rolled stones in such quantity and at such a velocity that the stones and pebbles striking the basket resembled the sound of hail falling on a window pane. The large chunks of coal, washed away from the dumpings of the anthracite mines farther upstream, were salvaged from the rubble and burned in a stove that was kept on the eel barge.

The large barges, many of them measuring eight feet wide and 20 feet long, used in hauling stones to the walls during the summer months, were fitted with a small cabin or shanty in which the fishermen took shelter dur-



Part of eel basket in place. Only two steps or falls remain. As the water spilled over the first fall of the basket (extreme right) it brought the eels and deposited them at the bottom of the fall (under the white water.) Most baskets had as many as 6 falls, each progressively higher.

ing free moments between the times spent emptying the basket of eels. These boat houses were not furnished lavishly, yet some were equipped with beds, a table, chairs and pot bellied coal stoves. Practically every night enough coal was collected in the basket to keep a roaring fire going for days in the house boat.

Sterling Souder, another eel fisherman of Nescopeck, remembers one night when, as a boy, he and his father fished an eel wall and the high water brought an enormous boat landing into their wall. Luckily it lodged across the wall or it would have torn the basket away and sent it down the gushing river. They met the emergency by hanging lanterns on their boat and tore the dock apart on the spot with crow-bars and boated the good timbers ashore for the winter fire wood.

Eels, as most anglers know, are exceedingly full of wiggling life and extremely difficult to handle. Old eel fishermen, however, knew a few tricks with eels and could handle them with ease. Normally the eel came into the basket head first, but should it turn sideways to avoid the basket, it was at the mercy of the current and was swept into the fall. The fishermen simply raked these trapped eels into the next higher fall and allowed them to remain there until the excitement passed. The eels could then be handled by hand without the sign of a struggle. Eel fishermen kept their hands wet for dry

hands are soon clogged with the slime in which the eel's body is incased.

The trapped eels were placed in knitted bags, which had capacities for 150 to 200 pounds of eels. Bags and eels were then lowered into the water and fastened to the side of the boat until enough were caught to make a trip to shore worthwhile.

Eel fishermen knew a few tricks too when it came to skinning and dressing the eels. They'd sever the eel's backbone, then circle the head with a shallow cut barely through the skin. The skin was ripped for the first few inches with pliers, but after that, providing the fisherman's hands were wet, the skin could be removed by hand. Good eel fishermen were fast at the job. Ott Parr could clean three eels in a minute! A feat almost unmatched then or today.

Little of the eel was wasted. Even the skin was utilized in numerous ways, and farmers, carpenters and those suffering from rheumatism or arthritis were among their best customers. Farmers used the eel skins to make laces for their work shoes and to tie their flails together, an instrument used when thrashing grain by hand. Carpenters who acquired sore wrists as a result of using a hammer excessively, bound their wrists with a fresh eel skin and claimed that soreness and swelling were soon drawn out. Likewise, those suffering with rheumatism bound an eel skin around the infected joint and it was said to remove much of the pain and speed recovery.

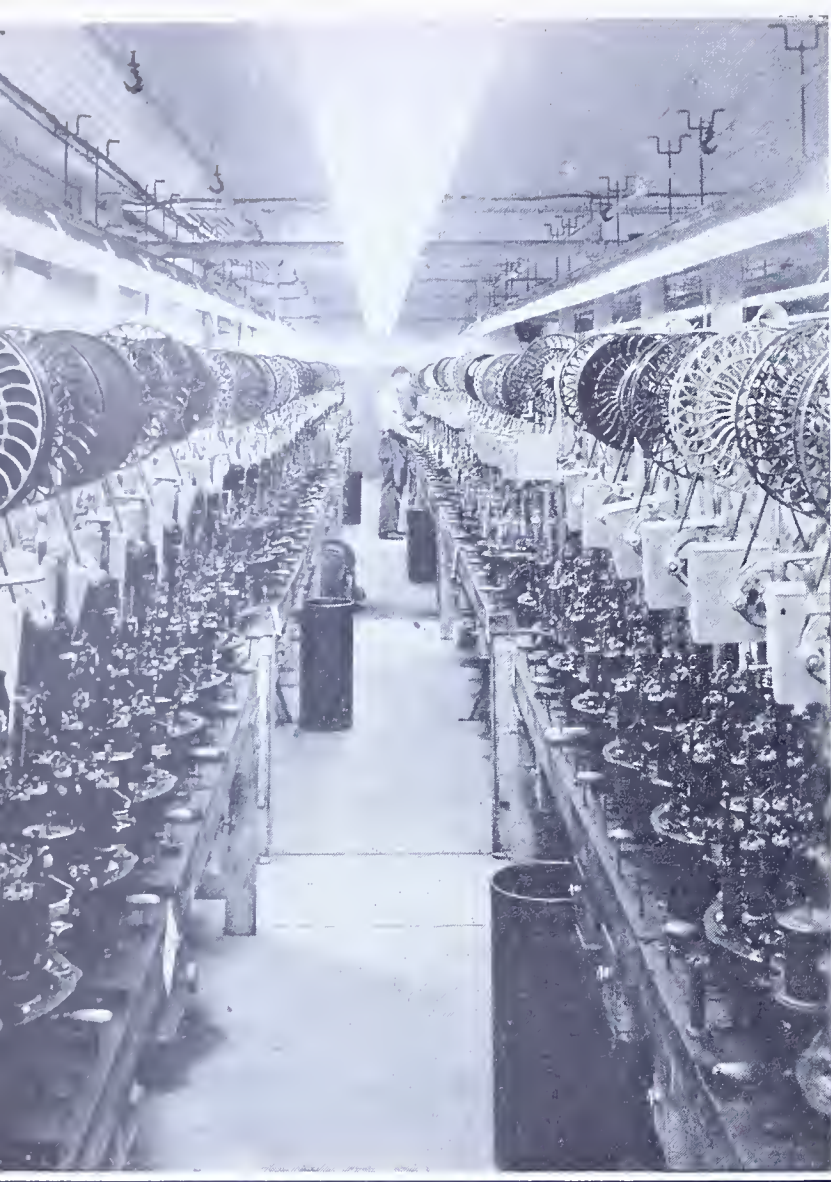
Fishermen catch large numbers of eels on hook and line each year. Kenneth Shiner caught this giant eel in Fishing Creek, near town of Orangeville. Eel measured 40-odd-inches in length. Caught on a worm, it gave a terrific struggle on his light fly rod.



Admittedly, the flesh of the eel is a bit on the greasy side, but prepared properly, it is a dish fitting for the most discriminating appetite. The meat should first be par-boiled, or steamed until almost done, then rolled in crumbs and fired to a golden brown. Chunks of eel measuring five to six inches are pansize. A fact that it curls in a pan is commonly associated with eels, but this can be prevented by simply making several cuts along the sides.

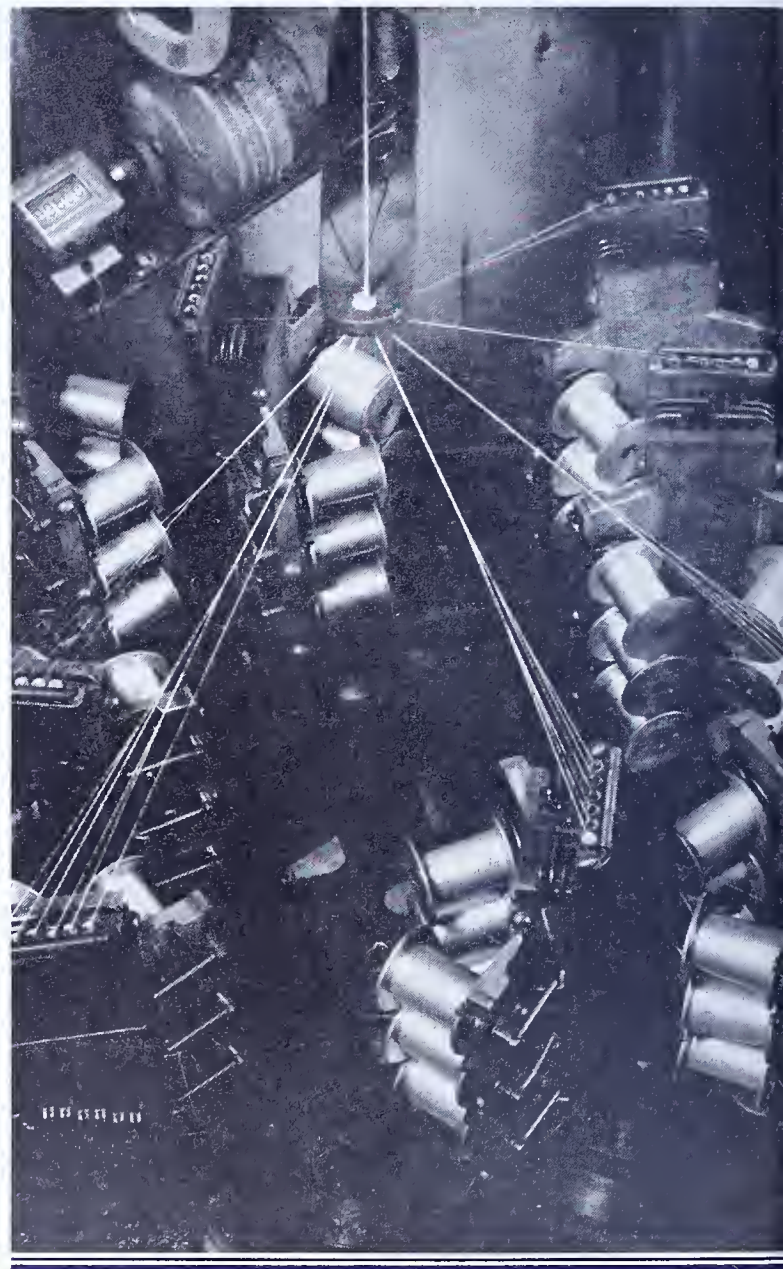
Eel fishing is not only confined to the larger rivers such as the Susquehanna or Delaware. Smaller tributaries and lakes also hold eels. Each year anglers all over the state catch eels on a hook and line. The battle involved is frequently pictured as that coming from the oldest grandad trout in the stream. Though they give the angler a difficult landing, the fisherman should remember to wet his hands and the eel can be handled with ease. Old newspapers are sometimes used too to grasp the slippery eels.

While thousands of eels are caught angling for other fish, the method involving the greatest spirit and persistence on the part of fishermen is that of fishing the eel-walls. Though it is a forgotten industry on some of our rivers, it is a lively industry elsewhere. The triangular shaped walls will remain for years as monuments to those hearty fishermen. Built with the intentions of catching eels, today these rock formations of the old walls are natural obstructions in our streams which help aerate the water and harbor bass. Though the eel fishing industry deserves a well written page in history, the splendid bass fishing in and around these walls in Pennsylvania today is another story worth telling.



LINE BRAIDING machines in the B. F. Gladding Company plant. These modern machines turn out the modern casting lines, vitally important items in the angler's equipment.

THREAD CARRIERS in close-up, top of photo shows results of the initial braiding operation in the manufacture of a fine



Lines

about

Lines

By Keith C. Schuyler

This article in two parts dealing with casting lines (Part I) and fly lines (Part II) required much work and research on the part of the author. The Angler believes readers will welcome these informative articles.

Part I

CASTING LINES

NO MATTER how fine the rod, how expensive the reel or how well the fish is hooked, the "net" result is going to depend entirely on whether your line can stand the test.

There is no combination of fishing equipment that is any better than the line you use . . . whether it be fly casting, trolling, spinning, bait casting or tossing a throw line. If you had to substitute your finest glass or bamboo

PENNSYLVANIA ANGLER

rod for a cane pole with safety-pin guides, and you had no reel at all, you could still get a reasonable cast if you had a line that fit the pole and the bait you were using.

And yet, the average angler is much more concerned with the excellence of his reel and rod. Too often he will blame one or the other for short casts, backlashes and general inability to produce fish when the main trouble is in his choice of lines.

Lines are not judged by expert fishermen chiefly for their strength; they are selected for the properties which will provide the farthest cast with the least amount of effort. This is not to say that a long cast is the best cast. But, an angler should not be required to make a forty-yard heave for a twenty-yard lie.

Consequently, various lines are built by the manufacturers to provide the best service for the purpose to which they are intended. With exceptions of

wire, lead core and salt water cords used for trolling, lines today must conform to very specific standards.

For bait casting, they must be light and strong. For fly rod work, they must be light and strong for bait fishing . . . or heavy, yet buoyant, for fly casting. And all fly rod lines must slide easily through the guides with a minimum of friction. For spinning they must be extremely light in relation to their strength.

All of these factors must be taken into consideration by the line companies which turn out thousands of miles of thread under the most exacting specifications. The fine lines on the market today are the result of years of testing and experimentation to meet the demands of sportsmen across the country and abroad.

A search into the history of lines does not take you back very far to reach the day of the crudest type of string, the counterpart of which can

still be purchased for a few cents at the hardware store. However, in the comparatively brief history of real line development, there are many gaps which could only be filled in by the line companies from their jealously guarded files.

Oldest of these companies, B. F. Gladding & Co., Inc., South Otselic, New York, has been most liberal in releasing information for the production of this article.

Pennsylvania anglers are mainly concerned with two types of lines, the bait casting line and the fly line. So, in our effort to bring a new appreciation of lines to state fishermen, we are going to confine our information to these two developments.

In speaking of casting lines, we concern ourselves with that type of twine which is propelled by a short fishing rod through the medium of a lure of sufficient weight to carry it. The means of propulsion is a modern adaptation which substitutes for the catapult provided by a man's arm.

The first casting lines were simply cotton, linen or silk strings thrown by hand and carried by a weight tied at the end. Although this method of throw-line fishing is still widely enjoyed by sucker fishermen, the more popular device is the well-known casting rod. However, silk and linen survived as two of the more desirable materials for line making. Modern treatments make them even more practical and useful. Nylon has replaced cotton as the newest of the better and more desirable line materials.

There is every reason to believe that the very word "line" may have originated with the first linen fishing lines. For, in technical use, the word line defines flax, of fine, long staple, separated from the tow.

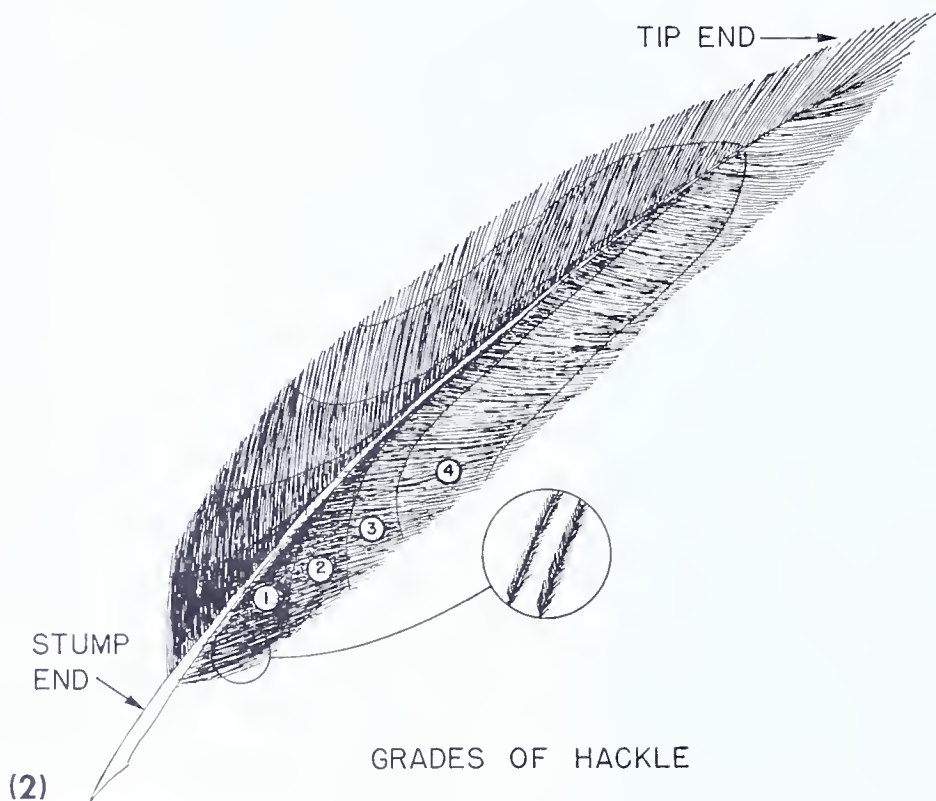
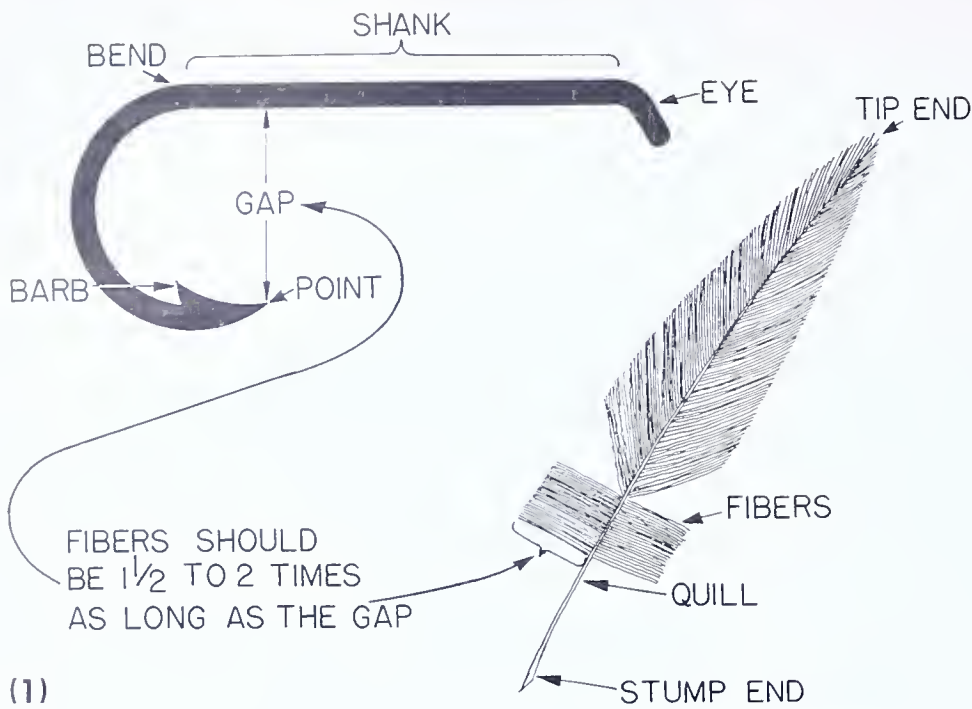
For lack of a better time at which to start the development of the common type of fishing line in the United States, we can go back to 1816 when John Gladding started making the product which still bears his name. Gladding, a rope maker, added the manufacture of twisted cords, chalk lines and fishing lines to his business.

When he died in 1830, his son James inherited the small, but thriving business of rope making, and he continued to also turn out twisted thread fishing lines. Some of the flax used in the product was grown locally and other linen and cotton was imported from nearby states. B. F. Gladding took over from James, his father, and he added

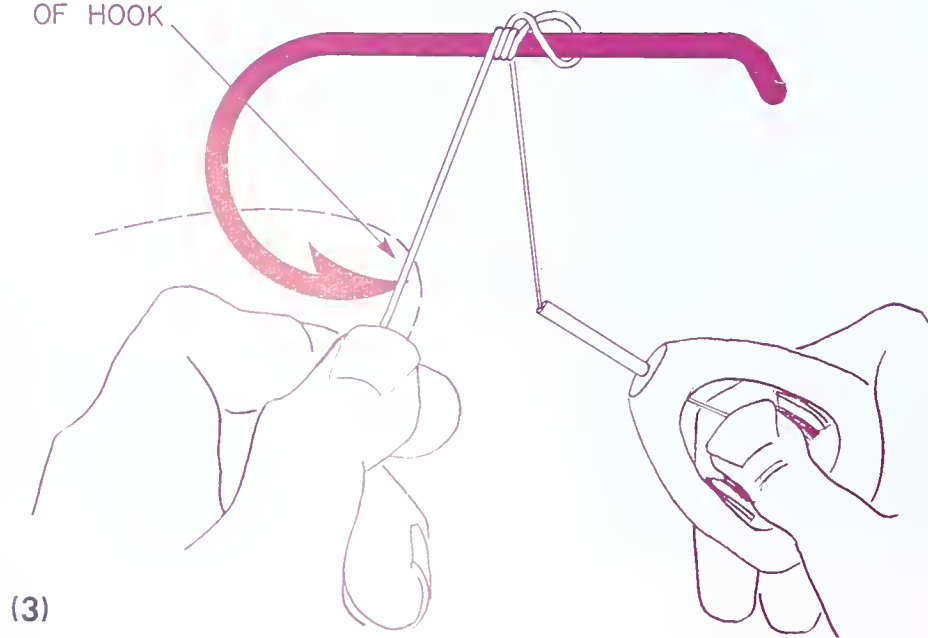
BRAIDER TENDER carefully watches each machine as threads are added or cut out to develop the line.



(Turn to page 25)



NOTE: VISE
COVERS POINT
OF HOOK



IN Pennsylvania, thirty-five years ago, fly-tyers were just about as scarce as three pound brook trout today. The few professionals who knew anything about the art were so secretive that it was almost impossible to learn anything except what one could figure out for one's self. Today I suppose there are roughly two thousand enthusiastic tyers in our state.

Personally, I can think of no better hobby for the budding or accomplished trout fisherman than fly-tying. The creative, artistic and personal enjoyments one derives from this hobby are sufficient in itself, but these are only part. This skill keeps us closely associated with angling during the season and supplies a worthwhile and profitable recreation for our leisure time.

Surely the trout fisherman who is proficient at both angling and fly-tying will be much better prepared to meet the challenge of our heavily fished streams today.

Fly-tying, contrary to the belief of many, is quite simple to master. Some tyers become more proficient than others, but I have never had a student who could not tie flies well enough to take trout.

I take pride in being able to state that I believe I have taught more people to tie flies than has any other living individual. I have been teaching fly-tying continuously since 1934 and in this span have given instruction well over 6000. This experience, plus what I have learned from others has convinced me that "haste makes waste" in so far as teaching fly-tying

By (40

Associate Professor, School of
The Pennsylvania State University

Mr. Harvey is well known to those who have received expert instruction in fly tying offered by him on a regular basis.

ing

Simplified methods

PART I OF A SERIES

concerned. This series will be written with this in mind, hoping that beginners will find our simple techniques easy to follow and master and that, by the time we have finished, all will be taking trout on their own creations.

There are many little tricks in fly-tying every tyer picks up that to him seem best. However, many are quite difficult to describe verbally. I will only include those that can be seen diagrammatically or described well enough for the majority to understand easily.

The tools and materials for the fly-tyer are many. It is surprising how much can be accumulated in a very short time and how quickly all can be lost unless the proper precautions are taken against moths and beetles. Space does not permit me to list all the materials that can be used, so I will list only the essential tools and common materials.

Tools:

(1) Vise, bobbin, scissors (preferably sharp pointed), hackle pliers, and bobbing needle. In addition (if the pocketbook permits) one could purchase a whip finisher, half-hitching tool, tweezers, flat-nosed pliers and many other articles but these are not really necessary.

(2) Materials:

Hooks—sizes No. 10, 12, 14, 16 in regular length shank or any other hooks that may be preferred. The ones mentioned are the most popular. Best quality flies are tied on hollow bent hooks having turned down feathered eyes. Since hooks are an ex-

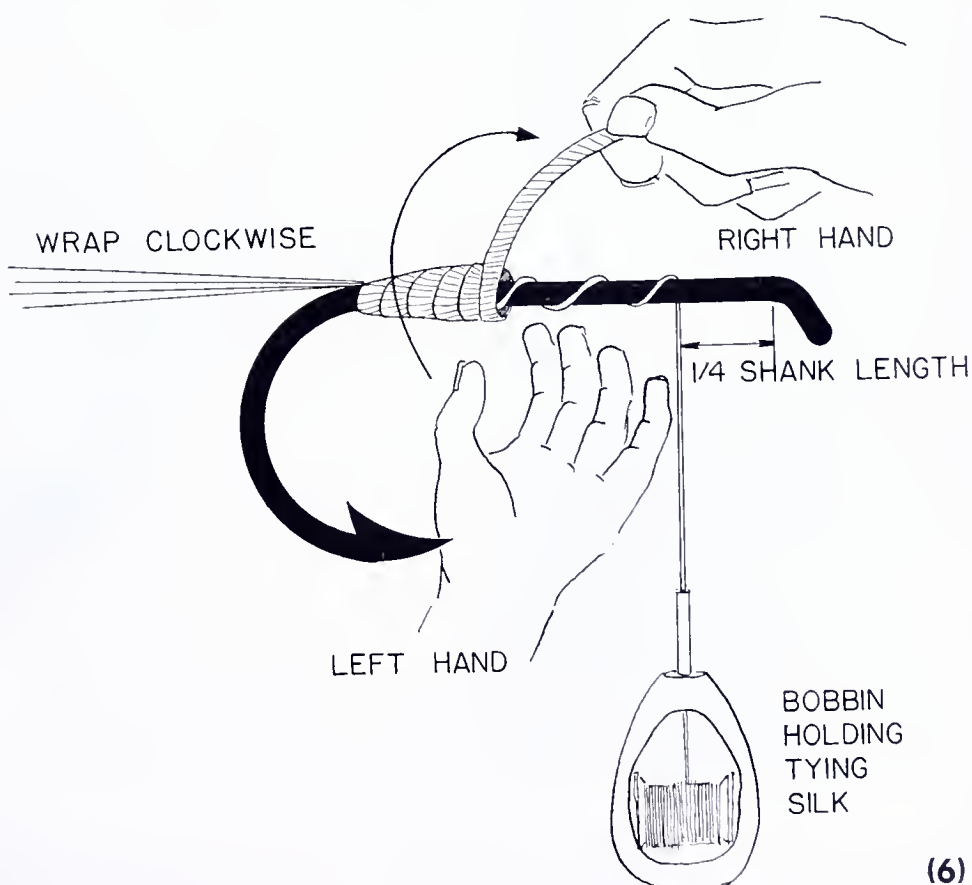
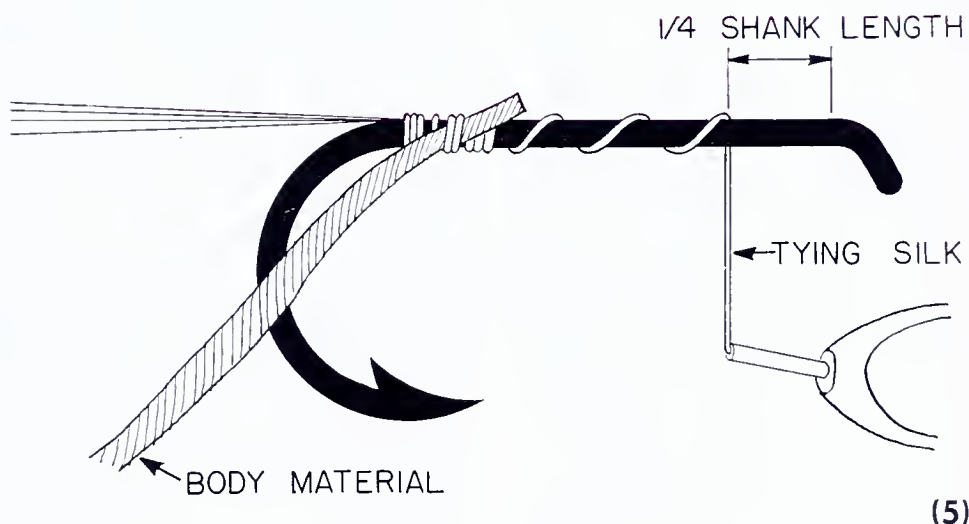
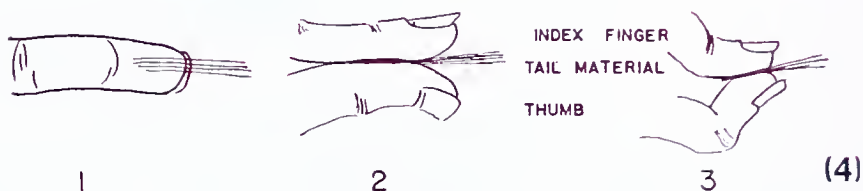
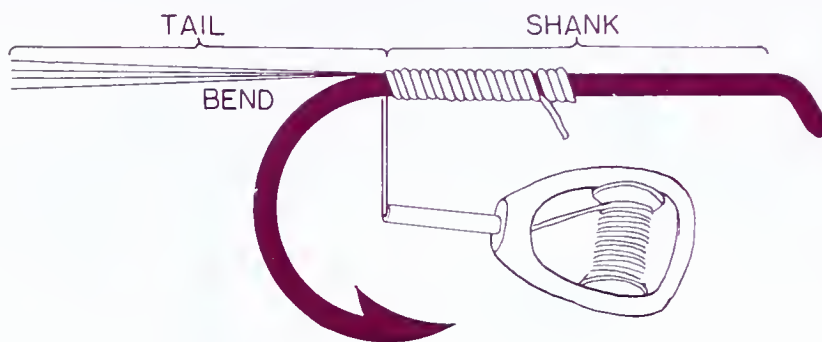
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Education and Athletics
College

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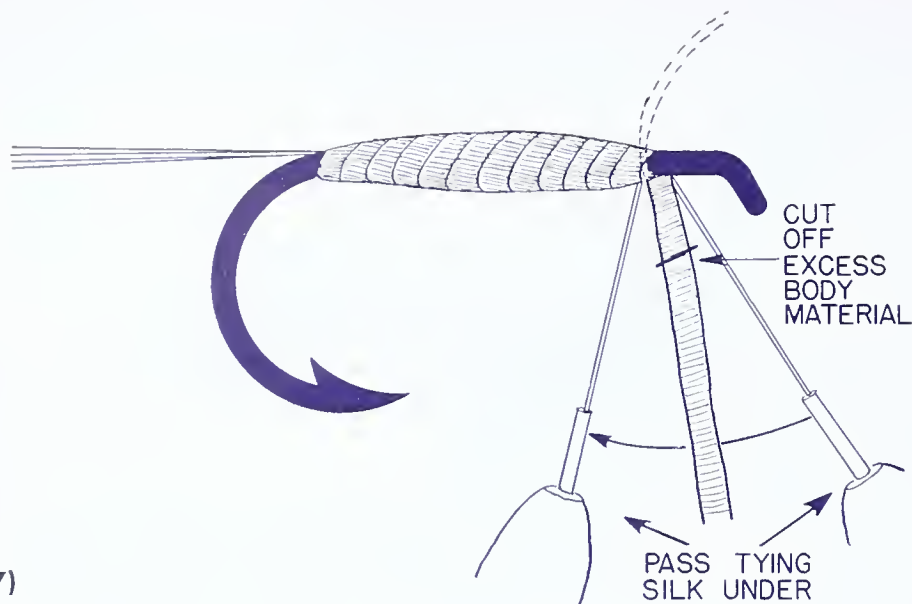
JANUARY, 1953

TAIL SHOULD BE AS LONG AS SHANK OF HOOK



(6)

(7)



pensive item, I suggest the beginner send for a material catalog from some supply house, then have someone who is experienced recommend the best for his needs.

(3) Tying silk—This is now mainly nylon. The beginner should have several sizes from No. 00 for buck-tails and streamers to No. 00000 or No. 000000 for smaller flies.

(4) Hackle: Both wet and dry fly quality in colors necessary for the patterns you will tie. There are dozens of colors and shades and all vary in quality. Ninety percent of all commercial flies are tied with the following colors: Brown, ginger, light ginger, grizzley, black and blue dun.

(5) Body materials: Silk floss, chenille, wool, spun fur, dubbing, peacock herl, quills, tinsel, etc.

(6) Wing materials: Wing quills (from any bird) depending on colors. Duck quills are most frequently used, breast and side feathers from mallard, wood duck, teal, etc., deer hair, squirrel, badger, groundhog and many others.

(7) Tails: Throat hackle is best for dry flies. Use material used for other type flies.

(8) Bucktails and streamer flies: Saddle hackle is used most frequently for feather wing streamers, however, neck hackles may be used. Deer tail hair is most commonly used on buck-tails but any hair that is long enough and the desired color can be used.

(9) Lacquer: Finish off a fly with some waterproof lacquer, cement or varnish. A fast drying lacquer is most popular.

Let me repeat, this list is by no means complete but will be sufficient for any beginner. Remember, if you

are a beginner, it is not necessary to have all the materials listed. Use what you have and add to your supply as you are able. A sample fly as a model would be a great help for the beginner.

Tying Hackle Wet Fly

Before the beginner starts to tie he should make a careful study of Diagrams No. 1 and No. 2. The hackle is the neck feather from fowl.

Diagram No. 1 shows the important parts of a hook and how to select hackle in relation to size of hook. For any regular fly, both wet and dry, this rule holds true. The hackle fibres should be from one and one-half to two times as long as the gap of the hook you are tying on. It is best to gauge the hackle by selecting fibers in the center third or middle of the hackle. The "bend" is the point

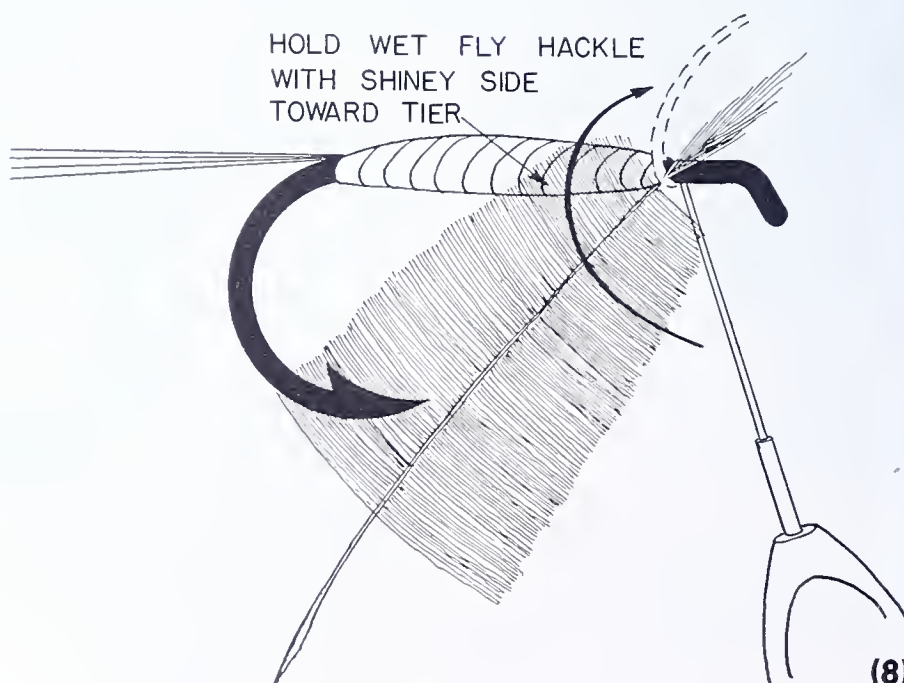
where the hook starts its downward bend. The eye is at the front end and the bend at the rear of the hook.

Diagram No. 2 shows the various grades of hackle. Any feather from any bird, if the fibers are long or short enough for the hook size you are tying on, can be used for wet fly hackle. However, 99 per cent of all dry flies are tied from cocks' hackle. Here we want a hackle that is long (from tip to stump end) with short, stiff, glossy fibers that have a minimum amount of down or webbing. If you take any cock's hackle and hold it against a contrasting background, you can easily see the webbing on the fiber. This is illustrated by the small circle in diagram. You can now compare the hackle with the one in diagram. If the hackle only has a small dense area of down near the stump end as illustrated by (1) and the rest of the fibers are clear, you have super quality hackle; (2) and (3) are still very good quality hackle; (4) should only be used for wet flies unless no other is available.

Diagram No. 3. Hook should be placed in vise (represented by the dotted line) so the point of the hook is covered, allowing as much clearance between the top of the vise and shank of the hook as is possible. The tyer should be seated directly in front of the vise. Now we are ready to begin.

There are many different types of fly-tying bobbins. I like one that is light in weight so that the finest of tying silk will hold it when suspended.

Note how this bobbin is held, thumb on spool and held by fingers. Never hold any bobbin back in palm of hand.



(8)

I suggest the beginner start with 000 or 0000 tying silk.

All diagrams and descriptions will show the right handed tyer.

Take end of tying silk between thumb and first finger of left hand, holding bobbin in right and allowing about three inches of tying silk between bobbin and left hand. Now lay tying silk over top of hook. Start winding clockwise, with bobbin hand, at center of hook making a few turns toward front of hook. Now, holding tying silk firmly, wind back over initial turns, continuing back to one-third the distance in front of bend. Cut off protruding end of tying silk. It would now be a good idea to turn to explanation of Diagram No. 10 and practice a few of the half hitches. If you wait until you are ready to finish the fly to learn this step you may find yourself in trouble.

Diagram No. 4. From a large hackle strip off four to six fibers for tail. Be sure to keep tip ends even. Remember, the tail should be as long as the shank of the hook. The small diagrams show how to hold the tail. 1 shows the position of tail on index finger, 2 shows how to hold so that ends of thumb and finger are even.

Tying silk should now be about one-third from bend of hook before you start to tie on the tail. Hold tail on top of hook so that fibers are flat on shank, with the ends of thumb and finger apart as in No. 2. Now bring the tying silk up between the thumb and tail material, back far enough so it can be held between the thumb and

finger. Then over the top of the tail and shank of hook and down the other side between the tail and the index finger. Before you draw the tying silk up, close the thumb and finger as in 3. This should hold the tail secure on top of the shank of the hook. Make several more turns with tying silk as diagrammed, being sure to hold tail directly on top of shank.

Diagram No. 5. Select body material. Single or untwisted silk floss or chenille is best for the beginner. Tie in the body material with a few turns of the tying silk just in front of tail, and continue winding tying silk up to one-fourth the length of the shank,

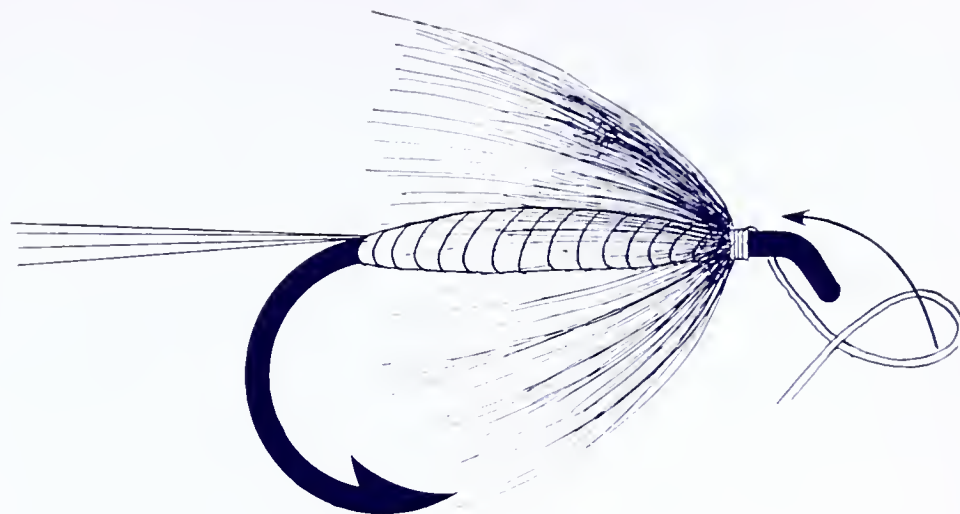
back from the eye. Remember body material and all other material should be held, when tying, in the same manner as the fibers for tail were held.

Diagram No. 6. When winding on body material, to the right, use right hand to take material over the top of shank and the left to pick it up in under. If it is necessary to wind back to the left as may happen when building up body, reverse the above, using the left hand over the top and the right in under.

For the wet fly build a tapered body as shown by Diagram No. 6 and run body up to tying silk.

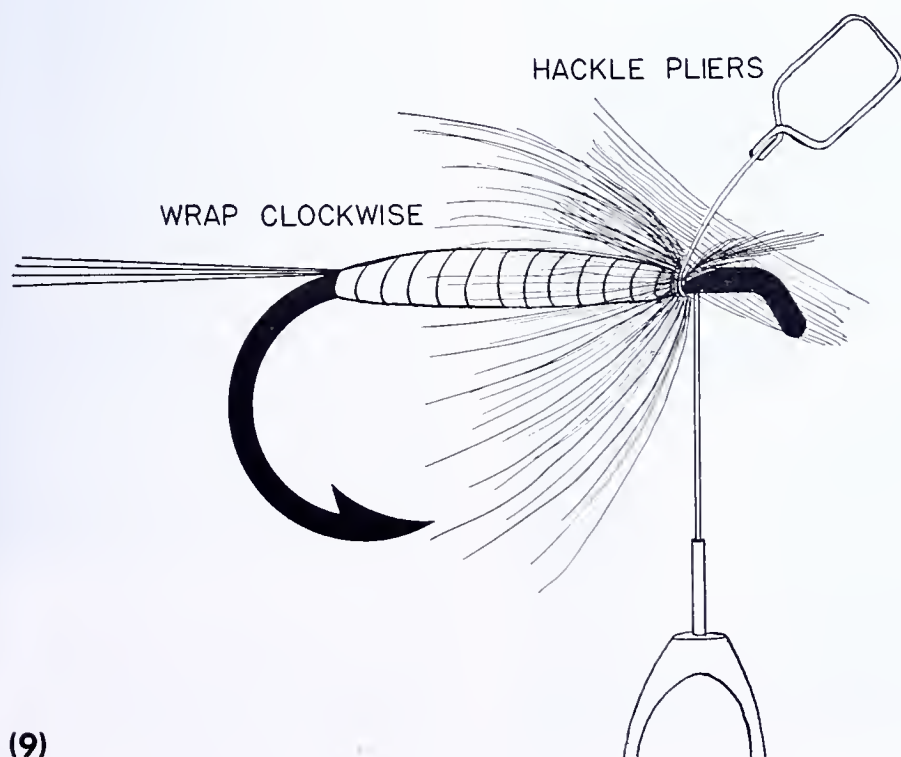
Diagram No. 7. When this step is reached you should be holding the body material between thumb and finger of the left hand. Now pass tying silk under body material and change hands, bobbin in the left, body material in the right. Wind tying silk over top of body material as shown by the dotted lines. Take several turns up as close to body as is possible. Now cut off excess body material. Be sure not to cut tying silk; beginners do this very thing quite often.

Diagram No. 8. Select wet fly hackle that has fibers the right length for the size hook you are using. Remember, the fibers should be one and one-half to two times as long as the gap of the hook. Hold by the tip end and stroke the fibers between the thumb and index finger, working from tip toward the stump end. The purpose of this stroking is to make the fibers stand out perpendicular to the quill. Tie tip end of hackle, close to body so



HALF-HITCH KNOT FINISHES OFF
THE FLY

(10)



HACKLE PLIERS

WRAP CLOCKWISE

(9)

(Turn to page 28)

THERE is magic and romance in the words "game cock." To the tourist it means the sound, fury, blood, flying feathers, steel spurs and gambling fever of the still legal pits of Cuba, Mexico and the Latin Americas. To the creator of feathered steel that deceives the fast water warriors of the trout and salmon clans it once meant the very finest hackle obtainable. Now rumor has it that we sometimes pay fancy prices for the common barnyard variety of hackles under the name of game cock.

Game Cock feathers

The barnyard fowl with its multitude of breeds and variations are probably the result of man's earliest attempt at domestication. There are two distinct wild breeds of Jungle fowl, red and the gray. The gray produces the "wax spot" feathers used for shouldering the finest of the fly tyers art, salmon flies and trout streamers. Its feathers are not suitable for hackles. The red variety originated in the jungles of India, Ceylon and the Malay Peninsula. It is safe to suppose that it was the fighting ability of these wild cocks that first turned primitive man's attention to them and led to their domestication. Cock fighting then became one of the earliest sports. By way of the early Caravan Routes the sport was brought to the Mediterranean countries, from there it spread to Europe. The Game Cock was then brought to England and from there to the English colonies. Cock fighting was one of the major sports of our southern colonies before the revolution. The development of varieties in color and size is lost in the maze of antiquities.

The development of hackle that grow about the throat and neck of the cocks was definitely a part of the breeding development. The cock with the stiffest, glossiest hackle had the advantage of a protective shield where the spurs of his adversary sought the life that bubbled so near the surface and so lived to become a link in the breeding chain.

When the Greeks fashioned that first Red Hackle and caught the speckled-skinned fish in the Macedonian river before the time of Christ it was the ancestor of our modern game cock that furnished the feathers, "in color like wax," that added the "legs" to that first imitation. The sport loving Crusaders who found leisure from the toils of war to hunt and hawk were largely responsible for the introduction of the sport into England.

Here the union between the sport of cock fighting and angling flourished side by side until about 1850 when the former sport was prohibited by law. Yet for the professional tyers there was always a supply of hackles and good capes as the preserved skins with feathers attached were called. How many of them died in illegal fights is not known nor did the tyer craftsman or angler inquire too closely.

Here in America the breeding of game cocks for exhibition purposes still flourishes even though the sport of pitting them is illegal. In my early days as a tyer, through a means I will not disclose I made the acquaintance of a gentleman who was a lover and breeder of game cocks. I was privileged to watch the conditioning of cocks in a pit in the basement of his home. Here too I saw the sharp stainless steel spurs with which cocks are armed when they are pitted in actual fights. Being also a trout angler he understood my interest and the covetousness with which I admired his splendid birds. During our short acquaintance he obtained a kit of dry flies that surpassed his fondest expectations while I acquired enough splendid capes to last even to the present time. Before you rush out to find a game cock fancier remember that at the time of this experience there were only three amateur tyers in a five county area, comprising central Pennsylvania. In the same area today there are probably several thousand who tie

By Albert G. Shimmel



either for market or for a select group of friends and even the capes of common barnyard cocks are eagerly bought up at full market value.

When the amateur looks through the price list of his favorite dealer in feathers and sees capes listed at from three to ten dollars according to quality and color he immediately concludes that a profit could be made raising feathers for market. Let us consider the facts. The best capes come from birds from two to three years of age. Oats and laying mash which are the feeding ration used for producing the best feathers are consumed at the rate of approximately two dollars worth per year, with care and overhead reaching at least another dollar in the two years. We have the price of a good cape in food and care. The chances of getting the best runs as low as one in ten and as high as one in fifty in certain off colors that command the higher market prices. When we consider these things the price we pay for natural Blue Duns, Badgers, Furnace and Honey Duns is very reasonable indeed.

What constitutes a good dry fly hackle? Each tyer has his own ideas yet there are certain qualities that are sought by all. The ribs should be thin and flexible, the barbs firm, straight and with a minimum taper from butt to tip. Even coloring and good quality in the smallest feathers is essential. Large sizes are fairly common and can be obtained from the base of the cape or saddle hackles growing on either side of the base of the tail. The latter make the best feathers for streamer flies as their stems are finer and more flexible as a general rule than those of the cape. The stiff barbs especially suitable for the tails of dries are found at the base of the throat. When we consider that two or three of these barbs are usually sufficient to support the small, firmly tied American dry a few feathers in each standard fly color would last the average tyer a long time. Another factor to be considered in selecting a fine hackle feather is the absence of web in the center of the feather. Many tyers make this a must yet some of my finest hackle have considerable web. To select a good feather stroke the fibers from the tip toward the butt between dampened fingers. The quality of the feather for dry fly work is the speed with which it assumes its natural shape. If it is slow in this essential it can be used very effectively for wet fly work.

At the present time the bulk of hackles used and sold commercially are imported from Europe and Asia where

they can be more economically produced. Most of the American crop is eagerly sought by amateur tyers who trade and exchange capes after the manner of their shrewd Yankee ancestors. The word Game Cock still is a word to stir both the angler and the Fancier into visions of the past.

It cannot be denied that the most important items in the fly tyers stock of feathers are his hackles. This is doubly true if he is producing dry flies. In the manufacture of wets, streamers, and nymphs a makeshift is sometimes employed to produce the desired results. In dry fly manufacture the best is none too good and the ideal is beyond reality. The best has come to mean the hackle of game cock. When we consider the fact that we are trying to imitate a natural insect supported on six legs with a combination of fur, feathers, steel and silk that outweighs the insect several times. It is fortunate for the dry fly man the silvery under surface of the water so distorts objects floating on or above its surface as to render them impression-

istic. As we consider these facts, exact imitations we have so faithfully copied from nature are not nearly so exact as we have fooled ourselves into believing. Colors of a fly are blended, blurred and changed by the prismatic effect of light and refraction until the fish from his element below the surface is much handicapped in its search for nourishment. This handicap is a distinct advantage to the angler.

With these facts in mind the difference of one or two degrees in the shade of coloring in a hackle as represented on a color chart must be above fish perception. Even the angler craftsman who must have his colors matching perfectly must make his comparisons in the absence of any disturbing light factors. If he is tying for others there is a reason for this exactness.

One of the difficulties the beginner experiences is knowing what color of hackle is used in tying certain patterns and the origin of that color. Fortunately the most commonly used

(Turn to page 30)





Glueing

Technique

for the

By Vincent C. Marinaro

PART II

Amateur

Rodbuilder

have endured for thousands of years as shown by the veneered furniture removed from the Tomb of King Tut in Egypt. I would like to call attention, too, to the magnificent horn, sinew and hot glue bows of the ancient Turkish Archers who achieved fantastic distances under battle conditions. It is reliably reported that they attained distances of 5 or 6 hundred yards with war arrows. Imagine the terrific shock and impact bending these joints must have endured hour after hour, day after day in many battles. Today, mind you, after thousands of years, hot animal glue is still the standard by which all other glues are judged as any technologist will tell you.

In addition to this enormous strength and endurance, animal adhesives are just about the most efficient for spread and coverage that I have ever seen. When you consider the miserably small surface represented by the splines at the very end of the top joint, it makes you worry a little, lest there is not

evaporation is so rapid that you must work at great speed, using a lot of glue and wrapping with considerable pressure, at least 10 lb. on the driving pulley. Weldwood needs only ½ as much. Cascophen makes a very strong bond but stains the wood a deep purplish brown color and makes the joint very unsightly, particularly at the glue line. Aesthetically it is the least desirable of the glues. I have one other objection to this glue. It seems to be of a highly caustic nature and may possibly weaken the bamboo fibers.

These synthetics have two inherent advantages over the animal adhesives. They are impervious to molds and bacterial growth and are remarkably water resistant. Joints made with them have been boiled in water for hours without any apparent deterioration, but I submit that rod joints are not made to be boiled in water or to stir a pot of macaroni. But strange to relate, this poor resistance to molds that animal glues have, has been of enormous advantage to me over the years. I like to glue all of my experimental models with hot glue and if, after I have first tried them, I do not like them for some reason I simply coat the bare joints

NOW we must consider the application to the specific type of glue which the rodmaker selects. Let us take for example the hot animal glues first, and right off I know that a lot of beginners will feel a great surprise that I express a preference for these glues, but I know too that a lot of old-timers will agree with me that it is still the finest of rod-making adhesives despite some of its disadvantages. Remember too, that there is no such thing as a perfect glue, not even among the synthetics, which are so highly touted these days. Above all we must remember that we are dealing with a dynamic joint, not a static joint. Constant bending and shock require a special property that hot animal glue has to a very high degree. I have known of hot glued rods to be in constant use day after day, year after year for continuous period of 40 years with no sign of failure. Static hot glue joints

enough surface or not enough glue to hold at all. I have seen and made dainty little rods with no more bonding surface than 1/64" wide on the individual splines of the top joint.

On the other hand casein and some of the synthetics are extremely difficult to spread; oftentimes, they leave dry spots and shrink horribly so that there may be no more than 50 or 25 per cent coverage. With a synthetic resin such as weldwood, I have done very well by spreading a thin coat of glue as a sizing, allowing it to set a little then another coat just before wrapping. With another type of synthetic such as cascophen the recommended mixture for good joints is so terribly thick and

with mold, lay them in a dark damp place and let the little devils eat out all of the glue, allowing the strips to separate as beautifully clean and flat as though freshly planed. Then I apply an antiseptic or expose them to ammonia fumes, redesign my rod and use the same splines over again. It certainly saves a lot of work and bamboo. If you tried to separate the splines any other way, they would become so badly shredded as to be useless—that is—if it was good glue joint.

It does not seem to be generally known, but it is a fact that animal glues can be made fungus and water resistant too. For those who care to know, the classic formula is as follows:

Parts by weight

(Dry animal glue	100
(Cold water	225
Oxalic acid crystals	5½
Paraformaldehyde	1.0

Melt the glue at about 140 degrees F; then lower the temperature to 110 degrees F. Mix the acid crystals and the Paraformaldehyde together and add this dry mixture to the glue. Stir until all of the acid has dissolved. The Para does not dissolve easily, but it should be kept dispersed in the solution. The joints cure in about two weeks.

In connection with the use of hot animal glues, I would like to warn all beginners in rod-making that a brush application is just about the worst and most hazardous method of coating the exposed strips. The spreading time is too critical, especially with long strips or two piece rods. A few extra seconds wasted in brushing may cause the glue to chill, aggravated by the air currents set up by rodmaker's activity and his own hot feverish breath. The open assembly and brush application works

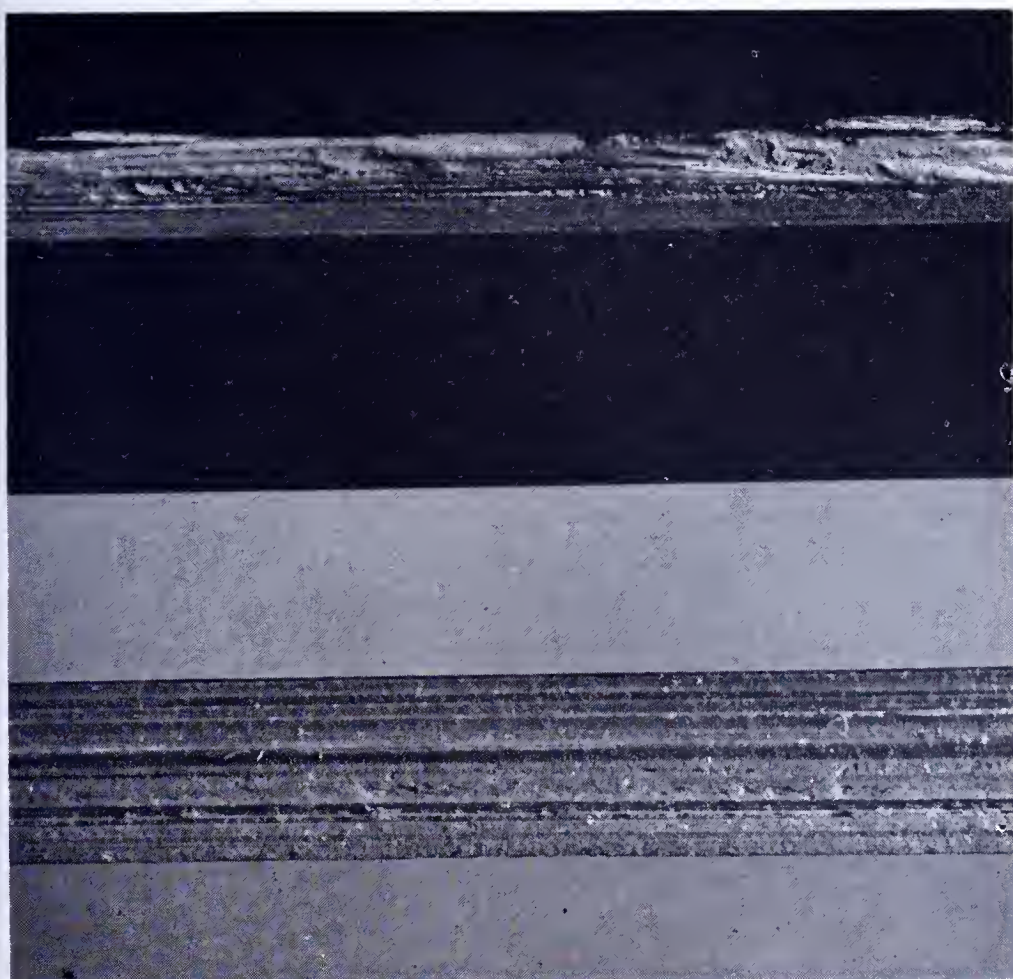
very well with casein and some resins, because there is much more latitude in the working time of these glues. I have worked successfully with the brush and hot glue, but believe me it is a split second affair and you need to do a little rehearsing first. The brush should be soaked in hot water first and shaken vigorously. Then the brush (a big one) is dunked and loaded completely with the hot glue. Then you make one big long swipe from end to end and quickly close the strip with your other hand. It's tricky.

It is far, far better to use the closed assembly and the equipment required is surprisingly simple to obtain and use. A long aluminum rod case for the outer jacket and a piece of one inch copper tubing, with one end sealed for the glue receptacle is all that is necessary. Place the nozzle of your water hose between the jacket and the copper tube; then connect the water hose to your hot water faucet. Heat your boiler until the water comes out at approximately 150 degrees F., and let the water

flow in and out of the jacket. The copper tube should be a few inches longer than the rod case to prevent water from flowing into the glue. Turn the hot water on whenever it is necessary to maintain a temperature of 150 degrees F. or thereabouts. Prop this whole affair nearly upright or at an angle of about 45 degrees and near your cellar drain to allow the excess water to run off. To operate the closed assembly merely bring together the strips of your joint and hold them with rubber bands at each end. Insert a round toothpick or matchstick in the ends to keep the strips separated. Dunk the whole joint into the copper tube which contains the glue and remember that your joint may displace a considerable amount of glue, therefore, do not fill the tube completely. If you like, you can dunk the joint into the tube, cork the open end of the tube, then turn it upside down to be sure that the entire joint is covered. It is a good idea to tie a string to one end of the joint in order to withdraw the joint. Lift the joint a couple of inches out of the tube, wrap a piece of rubber sponge around the joint and around the mouth of the tube. Hold firmly and withdraw the joint

(Turn to page 29)

THE WEDGE TEST



UPPER STRIP—Glued surface of this strip, revealed by the wedge test to be a first class glue-joint, a very high percentage of wood failure.

LOWER STRIP—The wedge test of this trip indicates a very poor glue joint. The surface of this planed strip is smooth and unmarked except for small flecks of dried glue remaining. A typical starved joint.



Notes and Memos

New Regulations for Pymatuning Lake

New experimental measures for managing the fishery resources of Pymatuning Lake have been announced jointly by the Pennsylvania Fish Commission and the Ohio Division of Wildlife. Major changes include an earlier opening of the walleye season and removal of creel limits on panfish. It is believed that the new measures will allow better utilization of the fish crop in the lake.

Pymatuning Lake is a boundary water between northwestern Pennsylvania and northeastern Ohio, covers a total area of over 15,000 acres and has a shoreline of 70 miles. The upper 2,500 acres of the lake is known as Pymatuning Sanctuary and is closed to fishing. In the main lake nearly 13,000 acres are open to public fishing—about 25 per cent being in Ohio and 75 per cent in Pennsylvania.

Biological investigations and creel census returns made by both states served as the basis for the new regulations. One of the outstanding findings was that the lake holds large populations of pan and coarse fish which are not being harvested by anglers. The lake is considered to be well adapted to walleyes; spawning of this species is successful in Pymatuning and occurs in April and early May.

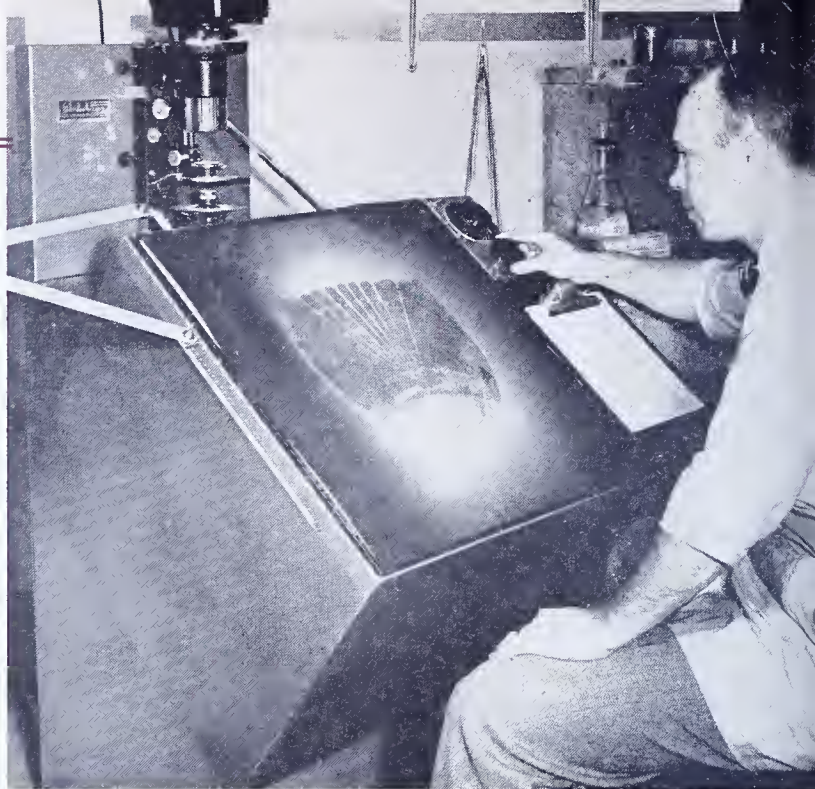
Under the new regulations, which go into effect on Pymatuning Lake on May 30, 1953, the walleye (yellow pikeperch) season will open on Memorial Day rather than July 1. This will give fishermen the extra month of June for walleye fishing. Effective on the same date, creel limits will be removed from bluegills and other sunfishes, rock bass, yellow perch, bullheads and catfish, white bass, suckers and carp. Pennsylvania removed creel limits from crappies in 1952. There have been no changes in the regulations governing largemouth or smallmouth bass or muskellunge. For these species the season still opens on July 1. The daily limits of minnows (35) and frogs (25)

are still retained in Pennsylvania. It was pointed out that these changes apply only to Pymatuning Lake and not to any other Pennsylvania waters.

Plans to continue and expand management studies on the lake are being made. These will include tagging of several species of fish, test netting and creel censusing. To test the value of the experimental regulations, fishermen will be asked to cooperate by reporting their catches to conservation officers or boat liverymen.



A host of angler friends everywhere have been saddened by the death of Mr. A. G. Buller, former superintendent of the Corry Hatchery, Pennsylvania Fish Commission, who passed away on October 14, 1952. Mr. Buller with a service record of 54 years retired as superintendent of the hatchery on July 1, 1946.



De Wayne E. Campbell, Biologist, Pennsylvania Fish Commission operates new Scale Projector in Fisheries Research Laboratory

Scale Projection Machine Acquired for Use in Fisheries Research

A new and valuable aid in providing better fishing for Pennsylvanians is now in use in the Fisheries Research Laboratory in Bellefonte. The machine, known as a Scale Projector, provides easy and accurate analysis of fish ages and rate of growth in the many different waters of the Commonwealth. (See article entitled "Fish Scales Reveal Age and Growth," *PENNSYLVANIA ANGLER*, March, 1952.)

The projector is provided with four magnifications and has been found very suitable for other work in addition to aging fish scales. As an example, the flow of blood may clearly be observed in sac fry of trout.

In the above picture a scale from a smallmouth bass is projected on the screen for aging by the fishery biologist.

District Supervisor Ogden Honored by Sportsmen

The Springfield Farmers' and Sportsmen's Association of York County honored Southeastern District Supervisor John Ogden on November 12 at their club house at Jacobus. Mr. Ogden was presented with a Shaffer pen and pencil set and a life membership in the club.

Chief Enforcement Officer W. W. Britton was the main speaker of the evening. Supervisor Ogden showed colored slides and Warden Paul Martin spoke on the stocking of fish in York County.

THE SNAPPING TURTLE

on the fish population in most bodies of water. In fact these turtles have a preference for dead fish over live ones if the fish have not been dead too long.

Perhaps the greatest damage done (in sportsmen's opinions) by the snapping turtles is the toll taken on duck breeding grounds. Except in cases where the snapper is very abundant, this toll may be a tool of nature carrying out its mass selection program. From reports of field representatives in northwestern Pennsylvania, it seems that the snapper in this region is abundant enough to take a heavy toll on the young of breeding waterfowl. However, this condition does not hold true throughout the state, because many water areas do not support nesting ducks. The so-called damage done in these areas by this large algae-covered reptile is insignificant.

(From Page 4)

Predators: Man is the main enemy of the snapper, but crows, hawks, larger fishes also take their toll. The highest mortality is on the eggs. The furred animals, such as raccoons, skunks, and probably other mammals, dig out the eggs and devour them leaving only the shell.

Economic Importance: The best known use of the snapping turtle is, of course, for "Snapper soup." He is also a scavenger, and he helps to control other vertebrates which prey on animals which are competitors to man for food. On the negative side, it must be pointed out that this turtle does kill and eat waterfowl.

Status in Pennsylvania: Let us put together the facts we have learned about the snapping turtle and determine into what category he should be placed—beneficial or detrimental.

First, he apparently has no effect on fishlife since the amount consumed is insignificant. It is one of the factors that helps keep a fish population in balance which man has so unwisely unbalanced. Secondly, a scavenger is always an important item in any natural scheme and this animal is a busy nocturnal scavenger who helps keep beaches and shoreline clean. Next, he does eat a number of aquatic waterfowl, but this depends on the habitat and the season of the year. There are probably many turtles of this species that have never killed or devoured any of our so-called game waterfowl.

In summary let us say that the snapper is, to many, an important game animal in the sense that he furnishes palatable meat for them. With the exception of waters which have large numbers of nesting waterfowl, wouldn't it be wiser to "harvest the crop" and not eradicate this reptile from waters where he can benefit all of us?

LINES ABOUT LINES

a starching process and braiding machines in 1878.

Braiding has been described as the first scientific step in the manufacture of fishing lines.

The business continued to expand, and in 1895 silk was imported from Japan to produce fine new lines. A secret Scotch process of enameling was added two years later, and although this method has been improved upon, it survives today. A waterproofing process followed and many new ideas were adopted as competition and demand pushed it into becoming the largest as well as the oldest company in the business.

(From Page 15)

There are now many choices in lines, and each company claims they have the best. None of them are too far from being right.

Casting lines are rated according to pound test since strength is an important factor. Larger species of fish are usually caught by casting, or trolling, and in casting the line must also be able to stand the strain and friction caused by the repeated propulsion of a sometimes heavy lure.

Pounds test indicates the number of pounds strain the line will withstand on a direct pull.

For fresh water fishing, silk and nylon are chiefly used today while linen, nylon and cotton are used for salt water angling. Linen is best for big game fish angling, but nylon is gaining in popularity with surf casters because it handles better. Cotton goes to make the inexpensive strings used by children and cane pole fishermen.

In selecting a pound test line suitable for your use, you must first consider the type fish you expect to catch. The pull exerted by a fish in the water is only about twenty per cent of its weight. This varies, of course, according to whether the fish is in still water or swift current. However, an angler may safely use a line of ten pound test for the average fresh water fish providing he is not fishing water strewn with sub-surface obstructions.

In using a light line, nevertheless, it is necessary to have faultless line guides, and the angler must keep constant check to ensure that there are no frayed portions.

Bait casting lines are waterproofed and most will give excellent service with proper care. Their strength is determined by the size rather than the number of threads as in a salt water line.

A typical line of nine-pound test contains sixteen threads of silk, each thread running 4800 yards to the ounce. An eighteen pound test line contains sixteen threads of silk, each thread

Today, although there are a number of companies in the line business, the processes of manufacture are fundamentally the same. Special treatments and secret formulas provide the differences. But all casting lines require numerous steps in development and treatment to provide the best possible connection between the angler and the fish.

The original casting lines were twisted cotton and linen treated with cobbler's wax and beeswax. Later, braided horsehair lines became popular. However, there was a gradual and increasing demand for a product that would be waterproof and of sufficient durability to withstand the friction of fishing rod guides.

MARCH OF DIMES

↑

FIGHT
INFANTILE
PARALYSIS

↓

JANUARY 2-31

running 2400 yards to the ounce. Our typical line takes about five days to braid, inspect, waterproof, dry, spool and package.

With today's anglers demanding the finest, the various companies have developed their own secret formulas for producing what they think is the best line available. For instance, Ashaway's nylon bait casting line is "Powerized"; Gladding is now using a new "Fib'R-Lube" process; Golden Dot lines depend upon a "Cosmanizing" process; Cortland's well known "Cam-O-Flage" lines are "Therm-Set" and "Dri-Seald."

But always, the real test is to produce a durable line that is small in diameter in relation to its strength.

Exhaustive tests by Gladding lead company officials to believe that fishing lines break, not from the external abrasion that all fishing lines receive in use, but from the internal friction between the fibers and the threads that make up the line. This theory is at odds with the generally accepted one that fishing lines break from the abrasive action of the line going through the guides.

Of course, rot is always a factor, but this has been held to a reasonable minimum by special waterproofing processes. In fact, at least one company, Golden Dot, claims its line needs no drying and will not mildew, rot or rust.

Correct color for a casting line will undoubtedly always remain a subject of controversy. There is one school of thought which maintains color is not important. Those holding to this theory will buy any line that appears to answer the requirements of wear and tear.

On the other hand, there is a school of thinking which is completely opposed, and this has led to a wide



variety of colors and combinations of colors. Those favoring color lean toward shades or combinations which most closely resemble the habitat of their favorite fishes.

Cortland claims a first on this development with the Cam-O-Flage casting lines. However, some of the other companies offer a multi-colored line, and all of them carry solid color lines.

In addition to providing a better, smoother, longer lasting line, the new processes give to the threads a quality of stiffness combined with the proper pliability that tends to reduce the number of backlashes. Some claim their lines are practically backlashproof, but there are always anglers who can tangle the best of them.

Competition among line companies continues to bring out new ideas, new lines and new theories. To the angler, this is a healthy situation since it means he will be the beneficiary. To

the fish it may mean little as the real test of any line is the ability of the person using it.

In the selection of a line for bait casting, it is well to choose the lightest line practical for the work you have cut out for it. A ten pound test line is heavy enough for average fishing if you buy a good one. This will enable you to use very light lures if your rod has the proper spine.

If you plan to alternate casting and trolling, however, a heavier line, around fifteen pounds, is advisable. Since it is commonplace to catch the bottom if trolling properly, it is well to have a line which will stand a reasonable amount of tugging. And, a fifteen pound test in the better lines will still give you a line that is light enough to handle all but the smallest casting lures well.

Heavier lines are best, twenty pounds or more, if you plan to fish water littered with fallen trees and stumps for big pike or muskellunge. In such fishing the type lures most common are plenty weighty enough to carry out a long cast of heavier line.

Bait fishing is a healthful, fascinating type of fishing. And, probably the most amazing aspect of the sport is the way slender lines take hours upon hours of punishment. But even the best line requires periodic inspection.

The first spot to go bad is usually in the last three or four feet next to the lure . . . the point of most wear. Simply test the strength of the line by pulling on it with your hands every few hours. Break off any amount that does not seem to have the proper strength.

But, as long as you have enough left for a decent cast, keep fishin'.

(Next month—Fly Lines)

FOR THEM WHAT LIKES FISH

(From Page 9)

large bed of hot coals, put in the dressed, clay-balled bird, rake back the hot coals and cover the whole in a mound of earth. After two hours of hunting, come back to just about the finest meal you've ever inhaled. With cored apples inside, the bird is even better.

For pan-sized trout or pieces of filleted trout, you might like this deep-fry method. It's much like cooking a doughnut. For this, I prefer peanut oil

which imparts no flavor and can be heated to 280° Fahrenheit without burning while animal fat burns at 175° or thereabouts. When using oil, be sure there is plenty. The fish should be completely submerged and the more there is the quicker the fish will fry and the longer the oil will hold its heat, which is important.

Whether the trout is whole—but dressed of course, or in fillets, it can be rolled in slightly salted milk or in beer, then rolled in flour and shaken to re-

move the excess flour. When lowering the fish into the hot oil, be sure the heat has been turned up immediately to counteract the temperature loss. The secret is to have the frying oil very hot when the fish are plunged into it so that a fried envelope seals around the trout immediately which will prevent the fat from penetrating into the fish. Test the oil by dropping in a small piece of bread. Drop only a few fish into the hot oil at a time. The fish will be found cooked to a turn when they rise to the surface. The rising fish should be drained on a clean cloth, dried, and slightly salted and served

on a dish with a grid or a paper napkin. To have the fish surrounded by extra thin flakes of lemon cut crosswise for show and some wedges for eating gives a most attractive appearance.

Last year I got a wonderful anchovy sauce recipe to go with fried trout. Got it from Big Ben of that wonderful San Francisco fish house—Big Ben Fish Grotto. Offhand it sounds pretty horrifying to have anchovy sauce with a delicate trout—but believe me, this sauce accentuates the positive with the most delicately flavored fish.

Chop up 12 canned anchovies. Put them into a saucepan with melted butter. Add four tablespoons of catsup, two of Worcestershire sauce, and one small clove of garlic. Pour in one cup of clam broth. Squeeze in the juice of one lemon. Add freshly ground pepper to taste. As with all sauces, I add a pinch of Accent. Simmer. Caution: Make plenty. It's powerfully good for soppings with your garlic—buttered French bread.

A good way to fillet a large trout for broiling is to open the fish from the back, cutting down parallel to the backbone, leaving the belly as a hinge. The cut can be started by slicing around the back fin and pulling it out, then cutting both ways from there, the backbone being the guide.

When the fish is large enough, it can be cut into steaks from one and a half to two inches thick. Broil the flesh side

first, then the skin side just enough to crisp it. With pieces of large fish, both sides should be browned equally. In broiling, put the fish on a very hot grill, fresh side up, and dotted with bacon fat or butter and added seasoning to taste. If the grill is not very hot, the fish will stick to the bars and break when turned.

Brush your fish with oil before you put it on the hot grill. If it is not an oily fish—some salmon are very oily, trout less so—brush it from time to time with oil.

The heat of the grill must be governed by the thickness of the fish. The smaller the fish, the fiercer the heat. A large thick fish should be broiled more gently and longer so that the heat will penetrate the fish gradually. In seasoning, whether the trout is fried or broiled, sprinkle on a little lemon juice and add salt and pepper. A touch of nutmeg is good, occasionally, for variety.

Just about as good a way as any of serving a large trout in the woods is a combination of boiling and broiling. Place the trout in boiling water for two or three minutes after dressing it, depending upon the size of the fish. Remove the skin, head and bones. Add salt, pepper, and lemon to taste, and a bit of butter. Now place the trout under a hot broiler until it starts to golden. When in the woods, a reflector oven can be used. Or more simple, use a hot frying pan. Turn it up on edge near the bed of hot coals with a flat

rock on the opposite side of the fire to reflect the heat. This method leaves all the natural-burn goodness in the trout.

You'd be short-changed if I didn't give you the method for making the best barbecued salmon I have ever eaten—with beer, before, during, and after. My host was Jack McGlinn whose people were Puget Sound fishermen.

The requirements are a good fat salmon—about a pound per person, a rack which you can build, a cupful of salt, and green hard wood.

In cleaning the salmon, take off the head but do not remove the fins or puncture the skin except in splitting. The preferred method is to split the fish down the back, taking out the backbone. But if your fish has the belly already slit, cut deeper along the side of the backbone down to the tail from both sides and remove it. After washing, wipe the fish dry, cover the flesh thoroughly with table salt, perhaps a cupful per fish, place a cloth over it and let it absorb the salt for an hour.

Make the rack, a wooden frame six feet by three feet, to rest on two 24-inch high sawhorses. Have ready a six-foot square of large mesh chicken wire. Staple the wire to the frame, stretching it tightly, leaving a three- by six-foot flap of wire. Lay the flattened salmon on the middle of the rack, flesh side up. If the fish looks too salty, rub off a little, then fold over the loose flap of wire, hooking it as tight as possible on slanting nail heads. To keep the fish from sliding inside its envelope of chicken wire, lace together around it the two layers of chicken wire with pliable baling wire or picture-hanging wire.

Start a small fire and then add three-foot lengths of green wood from three to five inches thick. Fruit woods or almost any non-resinous woods will do but they must be green. Keep the fire going slowly by putting the green logs side by side. Smoke is required—no flame. Keep the smoke going up into the fish and do not let a draft blow it away.

Put the rack within 24 inches of the fire with the flesh side of the fish down. Cook it in this position from two to five hours, even longer if necessary. Let me emphasize again! A minimum of heat and a maximum of smoke is desired. The longer the fish is "smoked" the better the "cure" but it can be turned after two hours.

During the last few minutes before turning, the heat can be increased but do not permit scorching. Turn the rack over about 45 minutes before the ap-



proximate time of serving—barbecues, of necessity are like that, "approximate." The heat can be increased but the flames must not get too high as they will soon burn through the skin. The extra heat will drive bubbles of oil from the skin up through the fish. That's why the skin should not be broken.

If an excessive amount of oil seems to be dripping from the fish, reduce the heat or it will become too dry. Should the fish have dried out too much, paint it with one-quarter or two of melted butter.

When ready to serve, move the rack away from the fire for comfort; cut the wires which hold the two folds of chicken wire together; and lift back the upper fold. Fill the platter directly from the rack, leaving the skin on the wire. Even lemon is superfluous.

When you spend several hours on a job like this, you might just as well barbecue two or three salmon at one time because it's even better cold. After all, a cook never bakes one loaf of bread at a time.

When you're wet and cold and dead-tired, something hot, semi-liquid and crammed full of calories always makes a very fine meal. And here's the pat answer. Fish chowder! It can also solve that embarrassing problem: how am I going to serve five people with four fish.

Fry squares of bacon strips in a skillet. When the fat in the pan is suf-

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ficient, put in slices of onion and fry them to a golden brown. Put in some half-inch cubed potatoes and add a little more water than would normally be required to cover them. Five minutes before the potatoes are done, put in the trout which have been filleted in inch squares. Just before you're ready to call: "Soup's on!" add flour which has been mixed in cold water to thicken the dish. To season, put in salt, Worcestershire sauce, catsup, Parme-

san cheese and Accent. Some add all-spice. Others swear that a dash of cooking whiskey lifts the dish into the higher realms of culinary attainments. Regardless, I'll go along—providing any is left.

For holding still long enough to read this, and perhaps drool, I'll add my Kabob twist of which I'm right proud. Get a stick of sweet-tasting wood about the thickness of your little finger at the small end and of your thumb at the larger. String on 50-cent size pieces of venison—or any meat will do, slices of onion, bacon, and tomato, alternating them for 18 inches, or 24 inches if you have that kind of an appetite. Roast this Kabob over a bed of coals. The sputtering of the drippings adds to the zest. When done, hold on. Take some prepared biscuit flour mixed either with milk or water until it has a rather marked consistency. Make a finger-thick roll of it and twist it over the Kabob. Turn it slightly as it cooks over the fire. Brushed with milk, it takes on a golden crust. Butter, or bacon grease helps, too. It's done, when a toothpick will come away smooth.

Then, pull the stick out carefully from the thicker end. Hold your little finger over the bottom end and pour the hole full of chili sauce, or if you want to go fancy, a mixture of soya sauce, Worcestershire sauce, and catsup. Any way you take it, it makes a tremendous camp meal. And it stays by you.

FLY TYING

(From Page 19)

that the top or shiny side of hackle is on top facing out. Take enough turns around top and so it will not pull out. Tying silk should now be almost up to the eye. Cut off protruding tip end. Grasp stump end of hackle with hackle pliers and start winding hackle around shank of hook. Make first turn as close to the body as is possible, keeping the flat and shiny side of hackle facing the eye of the hook. Three to five turns of the hackle is sufficient for any wet fly. When winding hackle, use hands in the same manner as when winding the body. As each turn of hackle is made, fibers should be stroked back. This can easily be accomplished by holding hackle pliers in right hand and using thumb and first two fingers to stroke hackle back. Now make next turn close in front and repeat.

Diagram No. 9. After three to five turns have been made, end with the hackle on top in right hand. Now hold in this position and bring tying silk up over in the same manner as used in securing the body. Cut off excess stump end and make enough additional turns so as to cover all visible material.

Diagram No. 10. We are now ready to finish the fly. This diagram shows the half hitch knot. Remember, now as in all operations, the tying silk must be held firmly so it will not unwrap.

I suggested earlier in Diagram No. 3 that you practice the half hitch. I will describe the knot. Hold bobbin in the left hand so about three inches of tying silk is between left hand and bobbin. Grasp tying silk between bobbin and hook, and close to body,

with tips of index finger and thumb of right hand, and with nail of index finger facing you. Holding tying silk secure in right hand and slackening silk from bobbin hand, make a half turn clockwise with right hand dropping loop formed over eye of hook. Three half hitches are usually sufficient. Be sure each is drawn tight. Later on I will describe the whip finish. Complete the fly with drop of lacquer on head.

In concluding I want to make it clear that the diagrams are not supposed to be drawn to scale. That has been the trouble with all illustrations on fly-tying I have ever seen. I wanted each diagram to show clearly each step so that even the beginner would have no difficulty following the procedure.

NOTE—Illustrations by James M. Cartey under direct supervision of the author.

ROD GLUEING TECHNIQUE

(From Page 23)

completely. This procedure will remove excess glue from the outside of the joint, and return the excess to the tube at the same time. Remove the tooth-picks and pressure wrap without delay. At one fell swoop a lot of problems are solved by this method, although it is rather homespun and will probably make the professionals laugh. In this way the glue remains hot and fluid. No chill air strikes the inner surfaces and the temperature of the wood is brought up to the proper level. Incidentally, for wrapping thread I recommend 3 cord Shoemaker's linen thread. It is very thin and strong. It will not stretch or slack, nor will it cause warp-age such as occurs with cotton thread. It is considerably more expensive than cotton, but not enough to deter the amateur. One 2 oz. spool will wrap a lot of joints.

With hot glues and the closed assembly only a few pounds pressure is necessary on the driving pulley of the standard glueing machine. The present glueing machine available to the amateur comes with a single wright in the neighborhood of 10 pounds, far too much, unless, you are using a very thick glue or the open assembly or working in a chilly atmosphere which you should never do. I suggest that you substitute a piece of maple or similar hardwood with a screw eye at the bottom to hang additional weight.

By the way, that little machine that you are using is descended to us from the horse and buggy days. The old timers used to wrap buggy whips in a similar manner, but you youngsters wouldn't know anything about that.

Lastly, I think the amateur should know something about the more recent advances in the treatment of bamboo for better adhesion. As stated hereinbefore, bamboo is one of the most difficult of all materials to bond, not only because of the type of construction (multiple strip) in rods which makes the uniform application of continuous pressure difficult but also because resins, oils and other extractives contained in the bamboo itself. Add to this the unfortunate fact that many beginners do not work in a clean manner, oftentimes depositing sweat and grime on the strips because of unjudicious handling. Bob Crompton, a truly great rod-builder, now deceased, first called my attention to the use of a 10% caustic soda-solution brushed on the strips about 10 minutes before glueing.

This technique was first developed by Forest Products Laboratory at Madison, Wisconsin. It has been very successful in glueing oily woods, such as osage-orange and teak, heretofore, almost unglueable. The result is the dissolution of the surface extractives, allowing a better "bite" for the glue, but I am convinced that it benefits the joint in another obscure, but tremendously important manner, namely, that it puts back some much needed moisture into cane. It is not generally known, but it is a scientifically proven fact that green wood glues better than seasoned or dry wood. Green wood does not have the excessive capillary action as does the dry wood. Dry wood cells act like a blotter, sucking in moisture and glue at a relatively high rate, sometimes leaving the surfaces bone dry with no glue film left for specific adhesion, in other words, a starved joint. But frankly, I do not especially like these strongly alkaline solutions even though they allegedly make a stronger joint. I have a suspicion that they weaken the wood fibers and shorten the life of a rod. In some of my rods treated in this manner, I noticed an alarming brittleness, particularly, in top joints where there is not enough thickness to buffer the penetrating action of the destructive alkali. I feel the same way about some of the synthetic glues, which usually

have powerful caustics in their formulas. Any glue which stains the bamboo ought to be regarded with suspicion. On the other hand, I have used just plain water brushed on very lightly, with beneficial effect. A nail-brush, just dampened and not dripping wet, passed over the strips to moisten the surfaces just before glueing is good practice.

I will not bother to discuss any of the other many glues such as starch and blood albumen glues, nor the thermoplastic types, requiring heat platens and other elaborate machinery, all of which are impractical or unsuitable, for the amateur.

I could not finish this discussion properly without some small comment on the seasoning process. This is just as much a part of the glueing technique as the glue itself. I can only discuss it lightly in an article of this length, but it really merits a very large treatment. Apart from everything else, the entire future of your rod is determined by the seasoning process. Remember that a freshly glued rod has absorbed an enormous amount of water and has just reached the saturation point. The joint is actually swollen considerably over and above the original calculations. This moisture has to be released, but very slowly, so as not to cause case-hardening, strain and warp-age. Furthermore a joint that is not adequately seasoned and used too soon is liable to suffer a set from which it



"The time of my life 'he said' 'dim lights, soft music'."

will never recover. The moisture laden cells are soft and pliant. They can be badly misshaped from premature use of the rod. You can take the heart out of your rod before it begins it's life.

A well equipped seasoning room where humidity and temperature can be controlled is not always available to the amateur, but he can build a seasoning box very cheaply and easily. It can be made of painted wood a foot or two longer than the joints and

about 6 or 8 inches square with a 10 or 15 watt bulb at the bottom and some air vents at the top to allow moisture and heat to escape. It works surprisingly well. Six months to a year of this treatment will condition a rod very well and give you many years of pleasure.

One last admonition I must give. It is this: that even if you establish and follow a perfect glueing schedule, you may not get a good glue joint if your

strips are not well fitted to give that all-important wood-to-wood contact. Good workmanship in your planing and fitting, of the strips means a lot in making a good bond. I wish I could say more about this, but it would require an article as long as this or longer. Maybe if some long suffering editor will let me, I may be tempted to write again and tell some pretty little secrets about making your splines to melt-and-marry and working out a first class design for your rod.

GAME COCK FEATHERS

natural colors are few in number and in most cases a variety of game cock can be found that will supply them.

Perhaps the most commonly used hackle is the red or brown. The actual color is a reddish brown, used for the brown hackled flies such as Royal Coachman, Dark Cahill etc. The best copies come from the Old English Black Breasted Red Game. In color the hackle and saddle are an orange red shading from dark reddish brown near the comb to ginger orange on the lower neck. An occasional cock of the common Rhode Island Red or New Hampshire Red will produce usable hackles at a much more economical price.

The modern Red Pyle Game also produces hackles for many of the common red or brown hackled flies. Their hackles are considered slightly inferior to the Old English because of a slightly stiffer quill. Yet even this hackle is excellent, expert opinion to the contrary.

Black Breasted Red Game of the Modern variety produces the much sought Ginger hackle used for light Cahills, Honey Dun, Ginger Spider and many other popular patterns.

Modern Red Brown Games produce brassy dun, a yellowish ginger with a dark stripe. This is a very effective hackle for some of the light sulphur hatches but is seldom used except by certain craftsman tyers. The little yellow Stone Fly is well imitated by a fly tied with a lemon yellow body and this type of hackle.

The Modern Golden Duck Wing Games produces creamy white hackles with an occasional golden tint to the saddle. The Silver Duck Wing has pure white hackles.

The Modern Black Game is another variety that is popular with fly tyers. Black Gnats and Midges, a necessity

(From Page 21)

at times on our Eastern streams, are best supported by these stiff fibers.

Because Game Cock Fanciers are particular as to the quality that first made these birds famous they sometimes cross two or more varieties in order to increase or intensify the fighting quality of their stock. These crossings produce some of the finest quality feathers and many of the most popular colors for the fly fisherman. Blue Dun Gray, which is really a solid gray and the Badgers, black centers with white or yellowish edges are the product of crossing black and white varieties. The Blue Game Cock with good hackles is so rare as to be none existent as far as purchase is concerned. The Badger is far more common, yet it is so much in demand that a good cape of this color is indeed a treasure.

In the early days of assembling a kit of good capes a friend of mine traveling through a bit of back country came across a portion of Hungary transplanted in Pennsylvania. It was not the old country picturesqueness that caused my friend to jam on his brakes and come to a skidding halt. It was a gray hen with a flock of blue dun chicks enjoying a dust bath in the yard.

With all the zeal of a true fisherman, the dust of his sudden halt had hardly settled before my friend engaged in an attempt to purchase the hen and her brood. The ensuing fury of broken English, gestures and persuasive enthusiasm of the bargain was something to witness. The deal was closed after much shrewd bargaining in which my friend paid the astonished countryman a price that caused him to bow us out with much courtesy. I fell heir to half the flock and succeeded in bringing three cocks to maturity. One was an excellent Blue Dun of dry fly quality,

the second a Golden Badger and the third an odd Black with Blue Gray reverse side. For several years we tried to get a good Blue Dun from intermatings among this flock but not one good cape did we get for all our trouble. England produced a Blue Dun Game but their rarity almost puts them beyond the possibility of the fly tyer.

Another color that is necessary by itself and in combination with other colors is the gray-grizzled. To the best of my knowledge no game cock of this color has been produced except by accidental crosses. The Barred Plymouth Rock is the source of these black and white barred hackles. With a trace of game blood you will occasionally find them with a combination of black, white and brown which give an extremely buggy appearance to flies tied with them. The effect is much the same as that of the Adams fly which is tied with a gray grizzle and a brown hackle in combination.

Another combination commonly found is the black center with edge of brown or red. I have one such neck with an edging of blood red. This is very effective for the smallest sizes of Black Gnats and in the larger sizes as a palmer for brook trout. The sureness with which the larger brooks take these big hackles as dusk darkens into night is a pleasure few anglers would forfeit.

Saddle hackles from either domestic or game cocks are excellent for streamers or wet flies. The finer quill gives them a much better streamer action than the regular neck hackles. Don't forget that by stripping the fibers from the larger feathers a quill may be obtained in a variety of natural colors. These form very effective quill bodies.

As to color, any good hackle with a mixture of two or more colors showing in the same feather is of considerable worth to the fly tyer.

The Editor's Angle

GOOD TALK

By Fred Cornelius

Mr. Cornelius is a bed-fast Rainbow Division veteran, a victim of mustard gas in World War I. He is still patiently awaiting the moment he can get out of his bed to once again wet a line.

IT HAS been a long time since I have dropped a line in a fishing hole. It has been years since I have heard Pa make the good talk about how he used to catch the big ones as fast as he could pull them out. It has been a long time since I have heard him talk about baiting his hook with worms and young wasps for trout, sunfish and suckers, how he used chicken "Innerds" and liver for channel-cat fishing—and so on.

It has been ages since Pa and I sat under a willow tree on the bank of the river listening to a big bull frog sounding off just below us, and a mockingbird mocking other birds in the tree top over our heads. It has been so long that I can hardly remember when Pa caught the biggest perch he had ever seen "snatched out of the river." It was indeed a long time ago when all of us used willow poles and long bamboo canes for fishing.

It all seems like a very pleasant dream now.

* * *

When my friends come to see me, they are allowed to stay by my bedside only a few minutes. They tell me stories of fishing because they know that I like that better than any other sport.

They tell me about their fine tackle, some costing a hundred dollars. They tell me about this plug and that plug, brightly-colored trout flies, about the strong silk lines no larger than sewing thread, but strong enough to pull in the biggest bass that ever swam the rivers. They tell me of glass rods and plastic rods that weigh only a couple of ounces yet are too strong to be broken easily. They tell me of landing nets and newly invented hooks that never fail. They tell me of boats that you blow up and float away in. And of a hundred and one wonderful things.

They bring me all the outdoor magazines with hair-raising adventures of fishing and hunting in them. I never

get tired of reading those swell stories and looking at the wonderful pictures, especially in the PENNSYLVANIA ANGLER. They inspire me and give me something to look forward to. I like to hear about new ways of fishing; and some day, who can tell, I may be able to try out some of these new things.

But what I really long to hear is some of the good talk about how Pa and I used to take them with worms and young, milkwhite wasps on a long shanked hook tied to a line made of ball sewing thread and tied to the end of a willow pole. I would like to listen to that bullfrog sounding off, and to hear Pa say: "Just listen to that. He sounds like he is as big as a real bull, doesn't he, boy?"

* * *

The big car rolled up and stopped in front of our home. A serious-looking man got out, and with his black bag in his hand, hurried into the house. He spoke to me in his usual friendly manner and got busy with his stethoscope.

"When will we go fishing, Doc?" I asked as he folded the instrument.

"Just as soon as you are well enough to make the trip," he said with a smile as he closed the black bag.

Good talk? You bet!

Of course that day may be ages away, but sooner or later it will come, and what a grand and glorious time that will be. In the meanwhile, I hope to hear much good talk about old-time and new-time fishing. About bright-feathered flies and two-ounce rods, about worms and long-shanked hooks and willow poles.

It is all good talk to me.

Dear Editor:

Enclosed is two dollars for two years' renewal of the PENNSYLVANIA ANGLER.

In my opinion, the ANGLER is the best and most informative fishing magazine a Pennsylvania fisherman can buy.

I would like to see some stories or articles on Gordon Lake and Koon Lake or bass fishing in some future issue, also on trout. Our crowd at home fishes Gordon Lake section almost exclusively during the bass season. We have some expert plug casters here.

FRANK SHANER.

Portage, Pa.



Mr. John S. Wise, Jr., of Allentown, Pa., sends in the photograph of Charles R. "Rickey" Stauffer, Jr., and James Wise (Jimmie) Stauffer, both of Allentown showing catch of 9- and 11-inch brook trout they caught in Monroe County last July.



Dear Editor:

Seeing your request for a formula or recipe for making good carp bait, a carp fisherman myself, I would like to help those who desire to connect with a monster carp in dams and deep holes of the river. There is a trick in catching carp . . . the reason? First you must know where they feed. Carp travel in large schools usually.

Sometimes you can observe 100 or more, slow in movements, over their

feeding beds where they turn practically every inch of underwater space over, make the water so muddy other fish get out of their way. But, they are also very shy fish.

You throw your line in among them while they're feeding and just like that they quit feeding pronto, withdraw to another spot. You must be careful your line has a very small sinker so it does not disturb them.

One must find the place of feeding first. Second, he must beat carp to their feeding bed, throw lines in and get out of sight. Sit close to lines as possible. If an angler misses a fish let the line in since it has two baited hooks.

If a big carp is hooked on light tackle you can look for at least a half hour battle before you get him in, which is a thrill to any sportsmen whether he intends to keep the carp or just have fun slugging it out with the finny elephant.

Many of the elite anglers scorn being seen fishing for carp, but these guys are sure missing something. You don't need to fish Canada or coastal waters to really get a big fish. If you do connect with a 25-35-lb. carp you'll think you've snagged a sub.

This above applies to dams, ponds or reservoirs, but in the rivers that I fished like Raystown Br. Juniata River and the lower part of the Juniata itself, carp move in smaller groups, feed more than twice a day. You may hook one in early morning, then another around noon, again about 5 to 8 p.m. In dams they feed about one-half hour after daybreak, again from 3 p.m. on; but in August and later they also feed at night till midnight.

Here is my best recipe for carp bait:

Two cups yellow corn meal, put in 2-quart pot, add Karo or other brand of light syrup until it starts to run off spoon. When thoroughly mixed set to boil for 10 minutes or until it seems smooth, stirring continually. Take off stove, start to add white flour, stirring until it starts to form dough. Dump it on kneading board, work it into soft but firm dough as the syrup tends to harden doughballs when it hits cold water.

Size of hook? No. 1 to 2—and do not bait too heavy . . . just enough to cover hook. This dough will not sour, and if there are no turtles around you may add a drop or two of Anise seed oil.

Sweet corn is also good for carp bait, and some fellows snag some real whoppers on it here in the dam. I do find dough more consistent.

Now there's the recipe and how to

catch carp, but the question is what to do with them after you land 'em? Some folks make funny cracks about how to prepare a carp like planking him and when done throw the fish away and chew the plank.

Our own former Governor Pinchot once had his own recipe. To properly prepare carp—skin, cut him up in chunks about 2 inches square, place in pan, salt real heavy (no water) let stand overnight. Then wash out salt, season with pepper, onions and add a few strips of smoked bacon. While roasting or frying sprinkle with juice of half one lemon and there you have it.

Here's a fish fry few people will recognize as carp. Try it!

JOHN MAJER.

Portage, Pa.

Dear Sir:

I am sending you the enclosed picture of my son, George Thomas Whiteman, 9, and the 15½-inch brown trout which he caught on Larry's Creek, Lycoming County, on his first fishing trip this past season. I hope you will find room to publish the picture.

JOHN T. WHITEMAN.

Jersey Shore, Pa.



Dear Sir:

Enclosed is a check for three dollars for continuing my subscription to the PENNSYLVANIA ANGLER.

For the past 30 years I have used your highways, streams and rugged country and associated with many of the kindly Pennsylvanians who have contributed much toward my comfort.

In our accelerated life of today it offers me a retreat within an hour or two of home where I may indulge in the pleasant pastime of trout angling, every minute being spent in absorbing many of the Creator's mysteries which is much more complicated and interesting than the fishing.



In the twilight years of life our thoughts toward excessive killing have softened. Bag limits, full creels are a thing of the past. We are more apt to focus our sights on a cagey old trout who has served his purpose in life than to boast of a limit of the hot house variety.

Your state is well blessed with some of the finest trout water in the East, assembled in mountainous scenery and solitude, where the heavy burdens of life are immediately buried in the quiet, peaceful God-given surroundings.

The PENNSYLVANIA ANGLER has been a worthy neighbor in binding our friendship by solving many of the mysteries hidden to the every day layman. It has added much to my interest and knowledge, making each journey a bit more pleasant.

JOHN F. WOODHULL.

Elmira, N. Y.

MATCHING QUIZ

Below are lists of fishery terms used in articles in the ANGLER pertaining to fishery management. How well can you match the terms in Column A with the brief definitions in Column B? Answers below.

A	B
1. Dorsal	a. Gill cover
2. Opercle	b. Migrating to sea
3. Piscivorous	c. Minute plant
4. Salvelinus fontinalis	d. Pertaining to back
5. Mandible	e. Brown trout
6. Catadromous	f. Fish eater
7. Algae	g. Lower jaw
8. Salmo trutta	h. pertaining to tall
9. Herbivorous	i. Plant eater
10. Caudal	j. Brook trout

Answers: 1, d; 2, a; 3, f; 4, j; 5, g; 6, b; 7, c; 8, e; 9, i; 10, h.

Keep That Fishin' Hole

A DEEP DARK
SECRET IF YOU MUST!

—BUT—

LET YOUR FISHING BUDDY
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FEBRUARY

PENNSYLVANIA ANGLER

1953

FISH AT HOME · FISH EYE VIEW · RAFTING DAYS · FLY LINES

FLY TYING · SCHEMES FOR STREAMERS · SUCKER STRATEGY



DIGGIN' FOR GARDEN HACKLE . . . pleasurable chore for anglers upending the sod in protected spots. Worms, suckers and catfish are all in the same department as thousands of fishermen get into first angling business of 1953. Pennsylvania anglers are again reminded—NO FISHING ALLOWED of any type from Midnight, March 14 to 5 A.M., April 15, (Except in Rivers, Lakes or Ponds not stocked with trout).

**COMMONWEALTH OF
PENNSYLVANIA**

HON. JOHN S. FINE
GOVERNOR

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PENNSYLVANIA ANGLER

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THE COVER . . . FEBRUARY is an active month at the vise for the angler tying his own. It's a fascinating hobby that quickly helps pass the long winter nights.

BACK COVER—FICKLE FEBRUARY thaws temporarily ease ice off that favorite trout stream.

—Photos by Don Shiner



George W. Forrest, Editor

1339 East Philadelphia Street, York, Pa.

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Living jewels are these neon tetras. Because they seldom reproduce in captivity, most of them are collected in their native waters, in the upper Amazon.

Fish at Home

By JAMES W. ATZ

Assistant Curator, New York Aquarium, New York Zoological Society

From the numerous requests we have received for an article of this type more and more anglers are supplementing their outdoor angling hobby by raising and studying fish at home. For those requesting information on the subject the Angler presents this fine article.

A NGLERS not content to cease all contact with their favorite sport as the season ends are turning more and more to the hobby of raising fish in home aquaria for study as well as pleasure. Maintaining an aquarium in your home may not teach you how to outsmart the big trout that's always eluding you, nor will it show you how to entice a bass to strike or what lure will fool a pike. But if you like fishes—and most fishermen do—there is no better way to get acquainted with them than to keep them as pets. You will have, literally, at your fingertips a whole little world of fishes whose inhabitants will live out their entire lives right before your eyes. The life story of a trout or bass must be pieced together from numerous fragmentary observations but the way of life of the guppy or angel fish,

living in a tank in your house or apartment, is pretty much an open book.

The principles involved in keeping a home aquarium are not many, and by observing them practically anyone can own a successful tank with beautiful plants and fishes. A single article such as this one cannot hope to cover all exigencies, of course, or even mention one-tenth of the 150 or more different kinds of fishes regularly available in pet stores today, but it may get the beginner started out in the right direction and help him avoid the commonest errors of aquarium management.

The choice of a tank is one of the first problems that confronts the would-be fish fancier. The simple rule here is to purchase a rectangular tank and one in which the height



At the New York Aquarium, this 300-gallon community tank contains a variety of aquatic plants and fishes, including gouramis and angel fish.

The common bullhead is a hardy, local catfish which thrives in captivity. It generally avoids bright light and seems to enjoy hiding in corners and crevices.



The reproductive habits of the sticklebacks make them especially interesting. Here a male of the four-spined species is weaving his nest out of a thread-like secretion from his kidneys.

is at the most two or three inches greater than the width. Tall, narrow tanks or globes give unsatisfactory results in the vast majority of cases. One reason for this is that they do not expose enough water surface to the atmosphere. It is through this air-water boundary that the essential exchange of vital oxygen and deleterious carbon dioxide takes place.

Unless you are an expert mechanic, it is much easier and cheaper to buy a ready made tank instead of trying to build one. If you insist on doing so, however, remember that the slightest bit of metal in contact with the water will kill your fish most quickly. For example, it takes but two parts of copper per hundred million of water to kill small fishes in one day. Much less will poison them over longer periods. In fact, it is of the utmost importance to keep all sorts of metals, paints, soaps, detergents, resinous woods, certain plastics and chemicals in general out of your fish tank. Insecticides are especially deadly to fish. For this reason, and others, a glass cover should be kept on the tank at all times. Do not worry about the fish getting sufficient air; no tank cover fits tight enough to exclude the necessary atmosphere.

Locating the tank properly is of importance. It should not stand in a drafty spot or near a radiator. Sudden

changes in temperature are bad for fish. Natural light is not essential, since artificial lighting is just as satisfactory in most instances and is more easily controlled. Direct sunlight, except for short periods, is to be avoided. Too much light encourages the growth of minute plants (algae) which turn the water green, obscuring the fish and killing the larger, decorative aquatic vegetation. A strong, firm resting place for the tank is essential. Water weighs eight and one-third pounds per gallon; a fifteen-gallon tank weighs 125 pounds or more when filled. Incidentally, this is the reason why a tank containing water should never be moved. It is practically impossible to do so without cracking the glass or springing a leak.

Gravel or sand is not essential in an aquarium, but makes for a more natural appearance and is necessary if rooted plants are to be used. Material about the size of bird gravel, or a little larger, is best. Too fine a sand packs too tightly and impedes the growth of plants. Pebbles and marbles provide crevices into which uneaten food falls, there to rot and spoil the water. Limestone products—such as marble, sea shells, coral and coral sand—should be avoided since they dissolve and tend to make the water too hard. All metallic ores are forbidden, of course. Quartz, sandstone and gran-

ite are the best known minerals suitable for aquaria. They are found in attractive shapes and forms and make ideal tank decorations.

The most important single constituent of an aquarium is the water, and unless this is kept in good condition, neither fishes nor plants will thrive. The best water for fish is what aquarists call "conditioned" water, which is water in which fishes have lived—and have improved by living in it. This is an unusual state of affairs, for the health of most domestic animals requires their living quarters to be cleaned regularly. Not so with the fishes that live in standing aquaria. Their waste products actually make the water more suitable for them to live in. Aquarists thus distinguish between clean dirt and dirty dirt, the former being the waste products of the fish themselves, the latter consisting of uncaten food, the bodies of dead fish and the like. Clean dirt need only be removed for aesthetic reasons, whereas dirty dirt should be avoided at all costs.

The beginner, of necessity, must start with raw tap water, but if this is treated correctly and the hardier types of fishes are subjected to it, no harm will result, and the fishes will soon chemically alter it to suit themselves. Water can be drawn directly from the tap, put into the tank and allowed to come to room temperature. This will disperse any chlorine which may be present. Unless the water is kept with living plants in it, there is little, if any, benefit from "aging" it, that is,

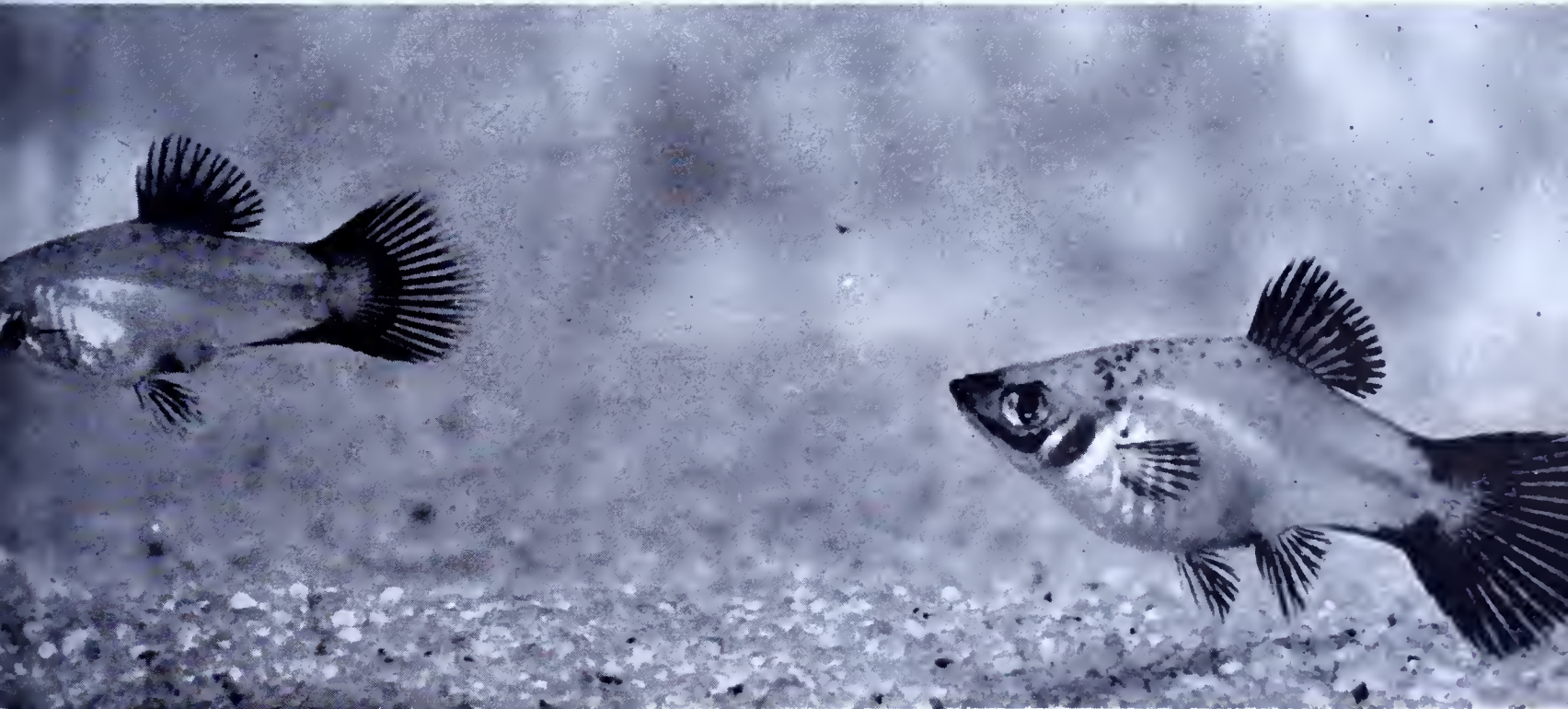
The Mexican swordtail is one of the best known live-bearing aquarium fishes. The male is easily distinguished by the pointed elongation of his tail fin.





Black crappies make satisfactory aquarium fish, if they are not crowded. Large ones, like these, require a very large tank, but small ones will do well in home aquaria.

The color pattern of the popular golden black wag platyfish is the creation of a scientist, Dr. Myron Gordon, working in the New York Aquarium. The male fish is on the left.



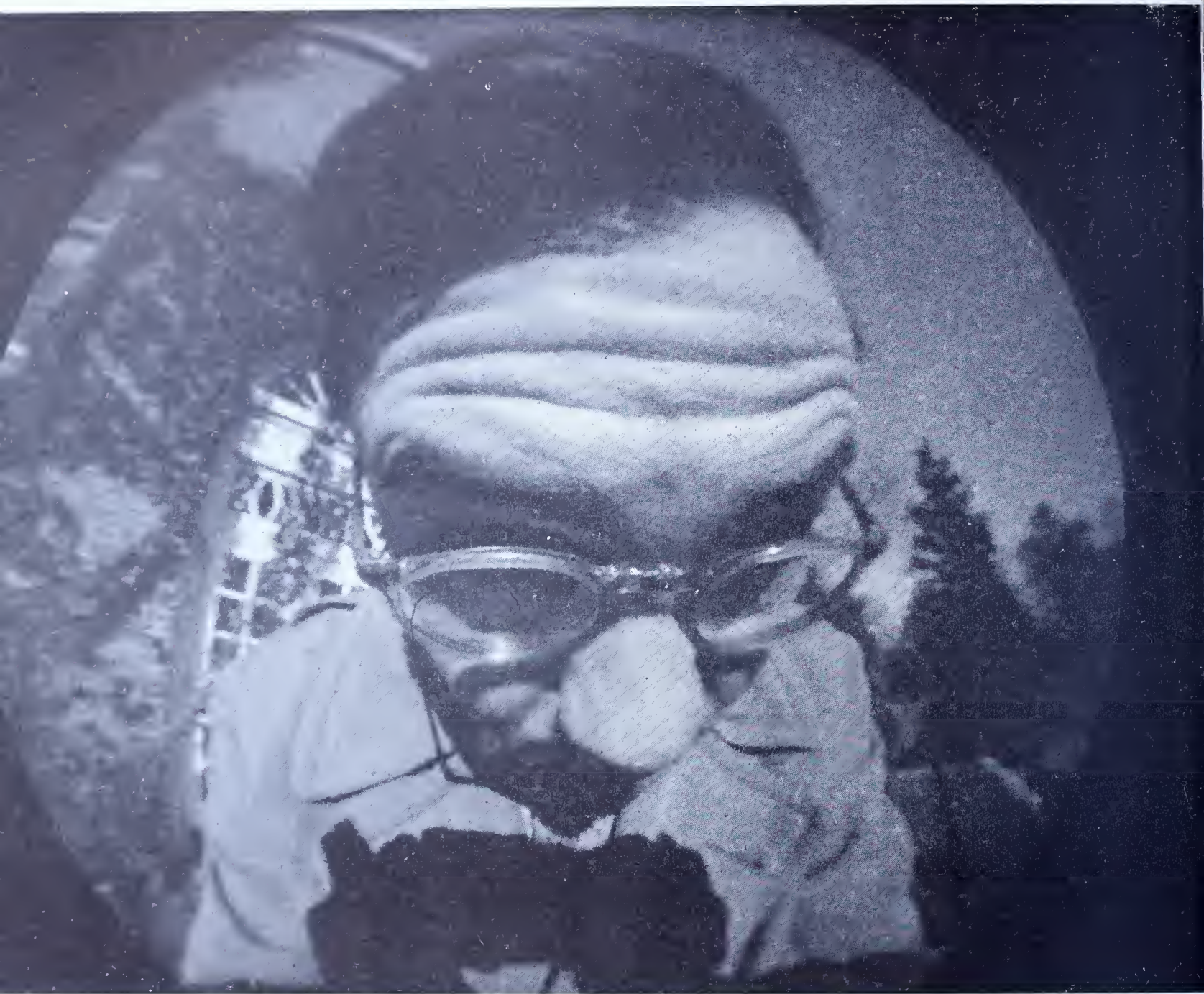
letting it stand for several days or weeks. Fish may be placed in the new water as soon as it has reached the proper temperature. For the first two weeks they should be fed most sparingly. The development of a slightly cloudy or milky appearance is characteristic of new aquaria, but once this

clears up—and it will do so within two weeks if the fish are underfed—the water should be crystal clear and should remain so indefinitely.

This is a good time to mention the greatest source of trouble in home aquaria: overfeeding. It is overfeeding that most frequently spoils the water

in tanks and is responsible for the death of more pet fish than any other cause. Fanciers frequently apply the necessary daily feeding of cat, canary or child to their fishes—with disastrous results. Uneaten food then accumulates in the tank, blackening the sand and

(Turn to Page 26)



Four goggly views
by glass-eyed "fish"



Piscatorial

Eye-view

A playful physicist shows how things may look to a fish

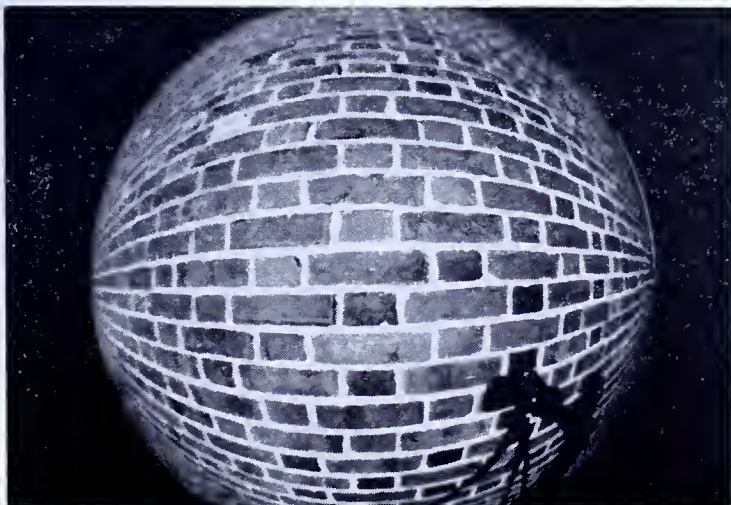
By permission of the Johns Hopkins University Magazine

CAMERAS are fascinating things even when used "straight," simply to record the people and objects which one sees 'round about. Few persons, however, once they have a camera in their hands, are content to use it only to make facsimiles of the human eye's view of things. The urge to experiment is great.

One inventive prankster with a camera—as well as a serious experimenter—was Dr. Robert W. Wood, now research professor of physics at Johns Hopkins. Several decades ago Dr. Wood decided to show the world how things look to a fish. He built a camera with its lens immersed in water and proceeded to take pictures. The distorted images, he solemnly announced, were the way fish see what they peer at.

This winter, also motivated by nothing more serious than a lively curiosity, William M. Sinton, another member of the Johns Hopkins University physics department, attached a "fish-eye" to a camera. Instead of being immersed in water, it is an odd glass contraption which fits neatly into a standard Leica. The lens is a thick, stepped back piece of plate glass, backed by a hemisphere, and slightly raised from the front of the camera so that it will cover a full 180 degrees.

Here are the results of Mr. Sinton's labors. He—joined by The Johns Hopkins Magazine and the PENNSYLVANIA ANGLER—presents them with no sweeping claims. No revolutions coming in photography. Not even a practical application in sight. Just the way things *might* look to a fish.



RAFTING

DAYS

Here is a tale of Pennsylvania in Civil War days, the days of Abe Lincoln, of rough, tough, rugged pioneers who fished virgin streams, then helped cut down the great timberlands, disregarding all conservation practices. It was the beginning of the end for virgin trout streams in the Keystone state. The story is spun again by a well known author of tales of travel, history, folklore, conservation, hunting and fishing.

By J. HERBERT WALKER

Member—Pennsylvania Outdoor Writers Association

Author—*Rafting Days in Pennsylvania; Folklore of Lumberjacks and Raftmen, in Songs and Legends* (University of Pennsylvania Press)

Director—Vacation and Recreation Bureau—Pennsylvania
Department of Commerce

BARK PEELING CREW in the Pennsylvania woods. Fellow to the left of gangling lumberman in center of photo looks much like he could be a top heavy-weight challenger today. These gents, fought, drank thirstily and swore but were fond of sad, melancholy songs.



PENNSYLVANIA'S early lumber- and woodsmen were hunters and fishermen. Most of them had to be. Their rifles brought down much wild meat and their activities along the streams brought up many fish—all to supplement the camp larders which nearly always needed fresh meat.

True, the woodsman and lumberjack killed and caught without thought of the future. He cut trees the same way for his boss. Conservation of both wildlife and forests was something scarcely known. At least it wasn't practiced in those early days in Pennsylvania. But to the everlasting credit of the last of the old-time breed of lumbermen and the lumber companies let it be said they learned the benefits of game, fish and forest conservation.

Destructive waste was a habit of the pioneers and that habit continued until almost a half century ago. This seems a bit peculiar since our early pioneers came from other lands where natural resources were not plentiful and where the proper use of them was generally well known. It had to be.

Perhaps it is best to say that our early pioneers were so completely taken by surprise by our great wealth of natural resources they were completely thrown off guard. However there were a few who thought seriously of conservation. Wise William Penn, long before he set foot on the land where he was to establish his Quaker colony, wrote out on July 11, 1681, in England, this regulation to

the "adventurers and purchasers" of land in his new province:

"That in clearing said land, care be taken to leave one acre of trees for every five acres cleared."

Of course the timber situation is not perfect in Pennsylvania, but we have come a long way since the early days of lumbering in this Commonwealth. Wise protection, wise regulations regarding cutting, wise harvesting, wise planting have helped us to increase the supply. Timber is one natural re-

source that can be replaced. Certainly conservation of trees and good fishing go hand in hand.

Having known intimately some of the later vintage of hardy Pennsylvania woodsmen and lumberjacks the writer knows they would have been in the forefront of conservationists today and would have been the strongest supporters of and fighters for those wise rules, regulations and laws that today have given us in Pennsylvania an outdoor heritage of great
(Turn to Page 23)



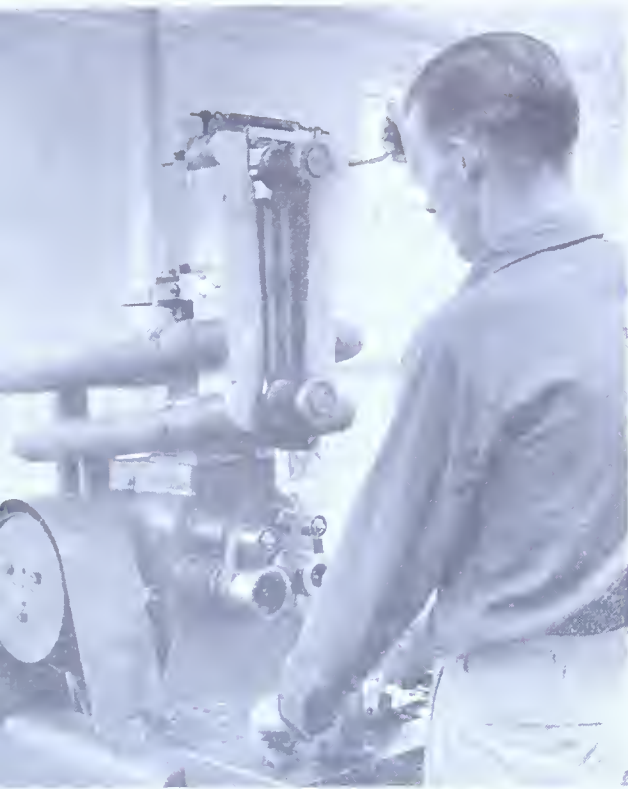
LUMBERMEN of those pioneer days of the great lumber industries were rough, tough characters who fished magnificent virgin trout streams and hunted abundant game in the Pennsylvania woods during their "off" hours. Camp cooks in foreground were reputed to turn out bad meals but these hardy outdoorsmen appeared to thrive on the "bad" food!



LOG BOOM in Susquehanna river, Williamsport, Pa. First sawmill in Pennsylvania was built here. Williamsport was aptly known in 1838, year of first spurt in lumbering, as Lumber City.

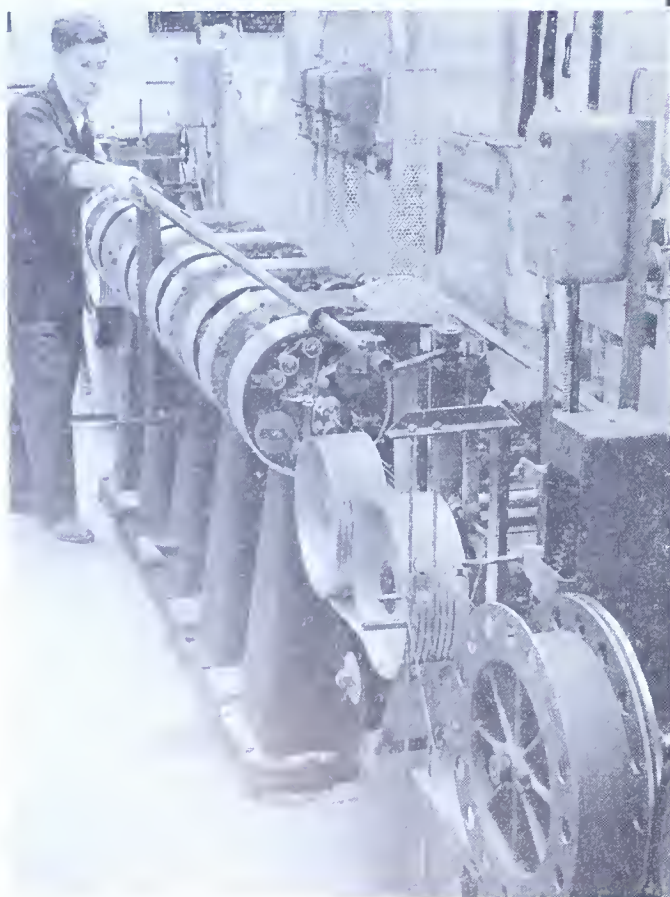
OLD DAM on Loyalsock creek, near Forksville was used in the lumbering days of Abe Lincoln and the Civil War.



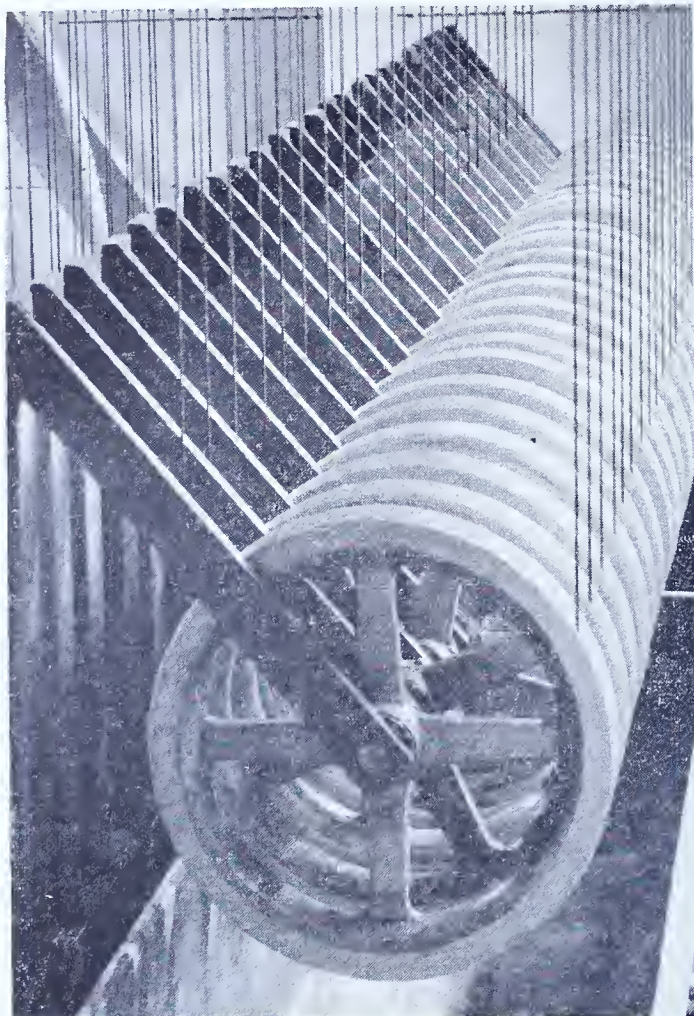


STRETCH is taken out of Nylon flyline with this heat setting machine.

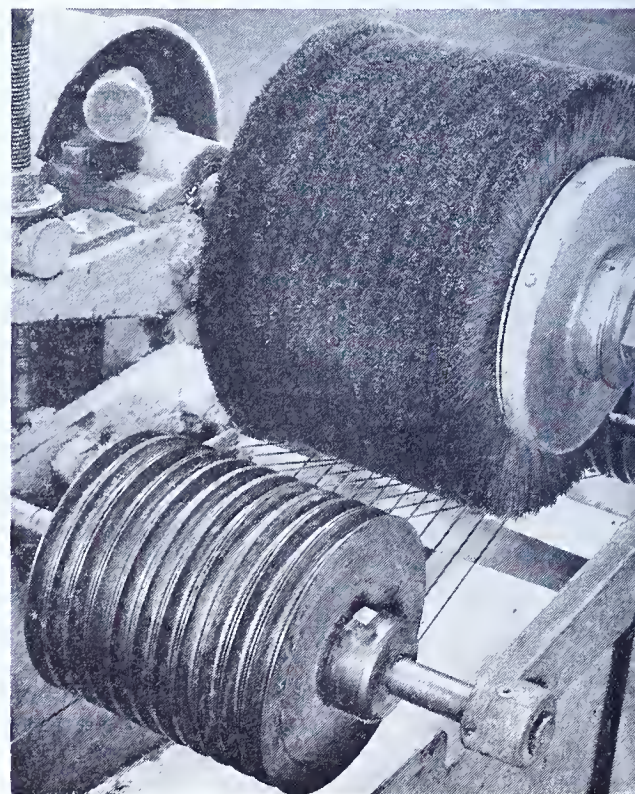
ALL FLYLINES are honed for perfect roundness and smoothness.



COATING OPERATING is a continuous process during which lines are alternately coated and dried many times.



FINAL DRESSING is brushed on each flyline before coiling.



Lines about Lines

Part II—Fly Lines

By KEITH C. SCHUYLER

PHOTO BY PAUL BLACKER

A MODERN fly line is a paradox in one sense of the word except to the angler who uses it. And, it is the most highly developed piece of string in existence.

It is a paradox in that its strength has little to do with its effectiveness and in most cases the heaviest line takes the lightest lure.

There is nothing more dear to the heart of the sportsman fisherman than a good fly line, and there is nothing more apt to make him lose his religion than a bad one. Yard for yard, there is no length of string more expensive. But the demanding angler of today ignores the price if he can find a line that entirely meets with his approval.

Fortunately, there are fly lines available now which at least approach perfection. And, when viewed merely as a length of string, they are expensive.

However, when we go into the actual painstaking processes behind every fine fly line on the market, we can well understand why they are valued so highly by the manufacturers. We can also develop a new appreciation of our fly line as a fine implement of angling deserving the same loving care and affection that we bestow upon the more permanent possessions that make up our sporting equipment.

Development of the fly line came about at the insistence of various and sundry species of trouts about the

nation. Often surface feeders, but extremely wary of any flies not properly placed on the water or appearing to be completely disassociated from the booted brethren casting them, trout became more and more particular how their artificial meals were served up to them. As the trout became more educated, man was forced to greater pains to keep up with him.

Consequently, this matching of wits has resulted in a fine development of one of the finest sports known to man . . . dry fly fishing. Not only confined to trout, there are variations of fly fishing that will take practically all species of pan fish, bass, and on occasion, pike and pickerel.

In each case, strength of the line is unimportant. A tiny 5x tippet may be the final taper in a line which at its heaviest point is capable of worrying a small shark. The primary requisite of any good fly line is first, its ability to carry the fly long distances, and secondly, its ability to float.

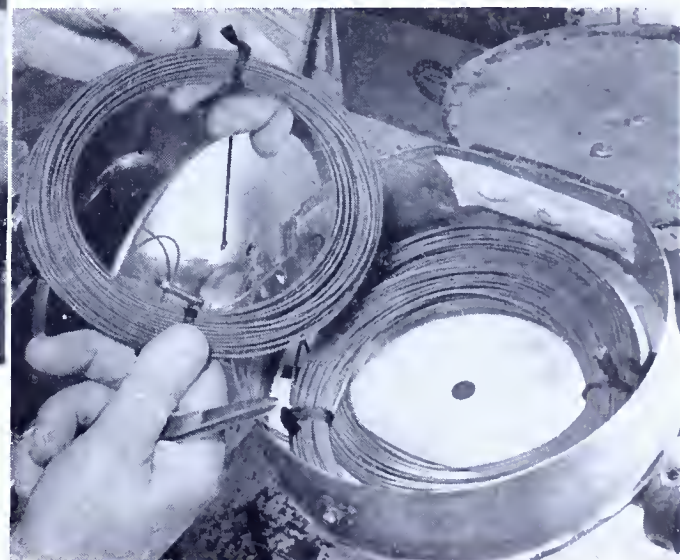
Floating ability is placed second only because even poor fly casting lines can be made to float for a time with any one of a number of special preparations made for the purpose. But, if a line will not cast well, its ability to float is of little importance.

(Turn to Page 27)

COILING lines is an art that requires plenty of know-how.



PROPER METHOD for reeling a new line on a reel without kinking it or causing breaks in the line.



Fly Tying

... via simplified methods

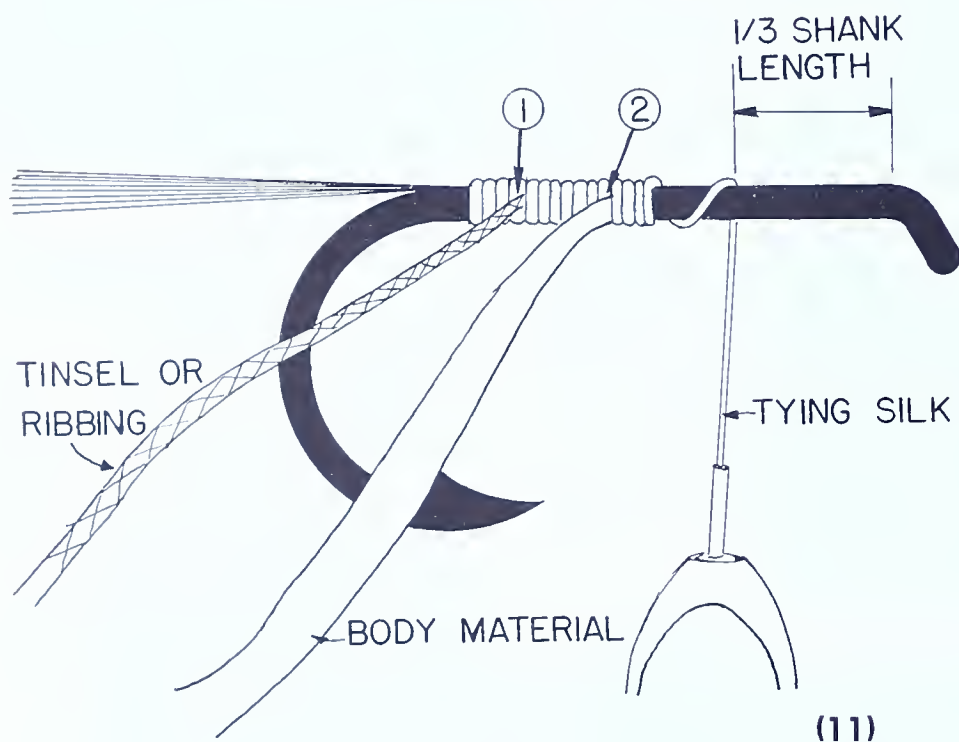
PART II OF A SERIES

By George W. Harvey

Associate Professor, School of Physical Education and Athletics
The Pennsylvania State College

Illustrations by James E. Carney

Body Construction and The Hackle Dry Fly



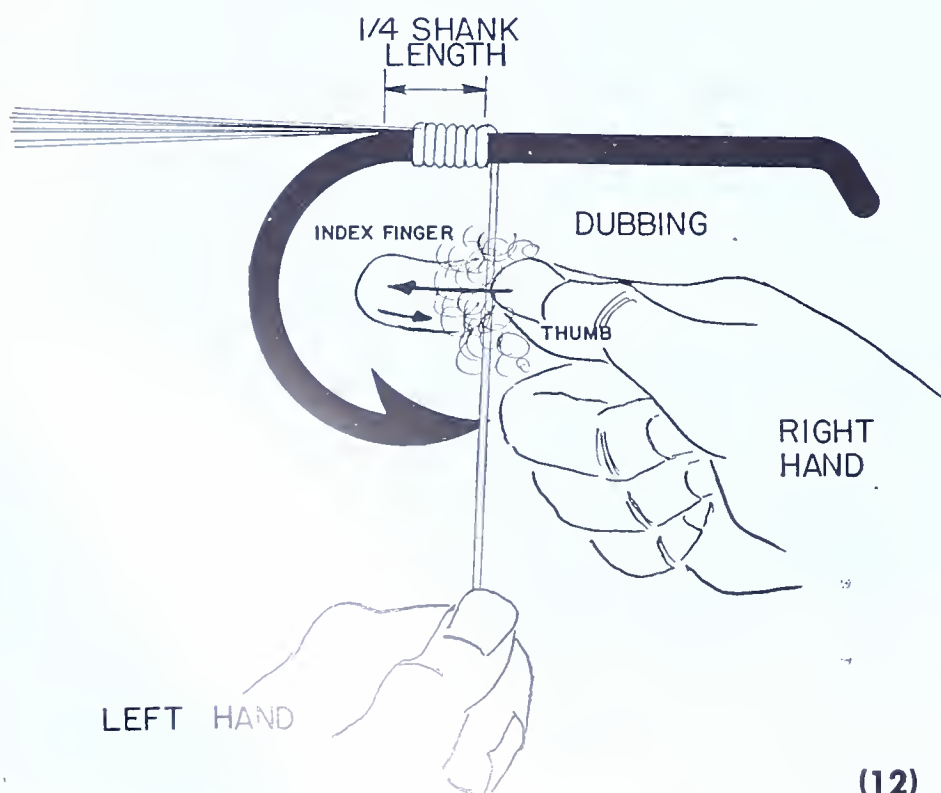
THE neophyte fly tyer's greatest temptation is the urge to advance too rapidly. It is quite easy for anyone to tie quality flies if time is taken with the fundamentals, and if each step is mastered before going on to the next. Most anglers who are fly tyers take pride in their handiwork and take great pains to make each fly a work of art. They proudly display their creations to fellow anglers and wait for the praise they justly deserve!

I know of no greater crime than to pick up a beautiful dry fly and, by mishandling, crush the hackle or wings. The fruits of a half hour's labor can be ruined in just a second or two by such an act. I have heard many fishermen say an old "beat up" dry fly is best! I am ready to admit I have taken many trout on flies in this condition, but I know from experience a well-dressed dry fly, with good quality hackle, one that will ride the water as it was tied to ride, will consistently take more trout.

Fly Bodies

There are many materials used for fly bodies. The most common are silk floss, dubbing, quill, chenille, and wool. Of all body materials, I believe the poorest is wool. I, personally, never use it, substituting dubbing, natural or dyed. Quills from the eye of an eyed peacock feather are the quills most frequently used, but hackle quill, and quill stripped from primary flight feathers (duck quills) and others are not uncommon.

To prepare peacock eye quill for use, one must remove the fine hair or fuzz from the fibers. Lay the fiber on a table with a light background. Hold by the tip and stroke toward the butt end with a soft eraser. For most flies, two inches of quill is sufficient. If you try to remove the hair from the entire



fiber, the upper half frequently breaks. The butt end is the strongest and widest and is the part to use. If the fibers are soaked in water for a half hour the fine hairs can easily be stripped by sliding the fiber between the nails of the index finger and thumb.

Hackle quill is by far the most substantial, and I like to use it whenever possible. To prepare the quill, strip the fibers from a large neck or saddle hackle. Now, soak the quill, for at least an hour in water. Tie in by small end and wind on, winding so that each turn is as tight against the preceding one as is possible. Never overlap. This type of quill gives an even-tapered body. A thin coating of lacquer over the body will help show up the segmentation more clearly.

It is well to remember when using any quill or tinsel for bodies the shank of the hook should be kept as smooth as possible. Any irregularities that show up after tying in the tail should be filled in with tying silk.

When chenille is used for bodies, it is best to shred the end and tie in by the two exposed threads. This way you avoid irregularities or humps in the body.

The dubbed body or fur body is very popular. By blending different colored fur, most any shade can be obtained. Fur from any animal, if it is soft enough, may be used.

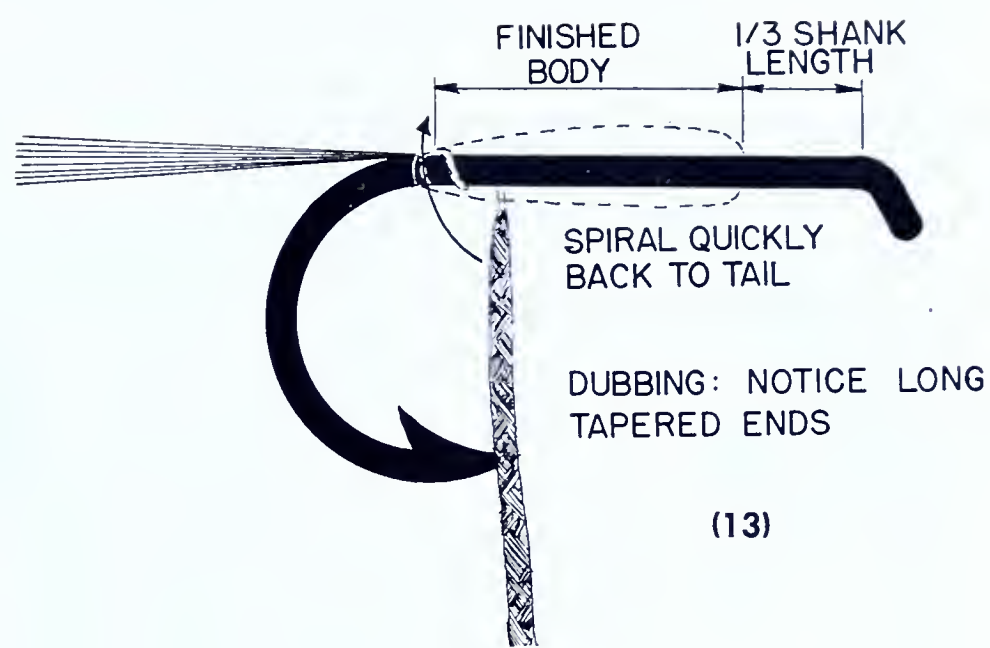
To prepare fur for dubbing, first pull out all long guard hairs so that only the soft silky under fur remains. If the natural color is to be used the under fur may be left on the hide until ready to be used. However, I still like to pull it out and separate it so no small bunches hold together. If one wants to blend, several colors (dyed or natural) may be used. Mix them by pulling out or cutting off close to hide a little of each color. Lay them together and pull apart; lay back together and repeat until original colors are blended to new shade. You may have to add a little extra of one or more colors and mix again if the shade is not what you want.

(Diagram No. 11)

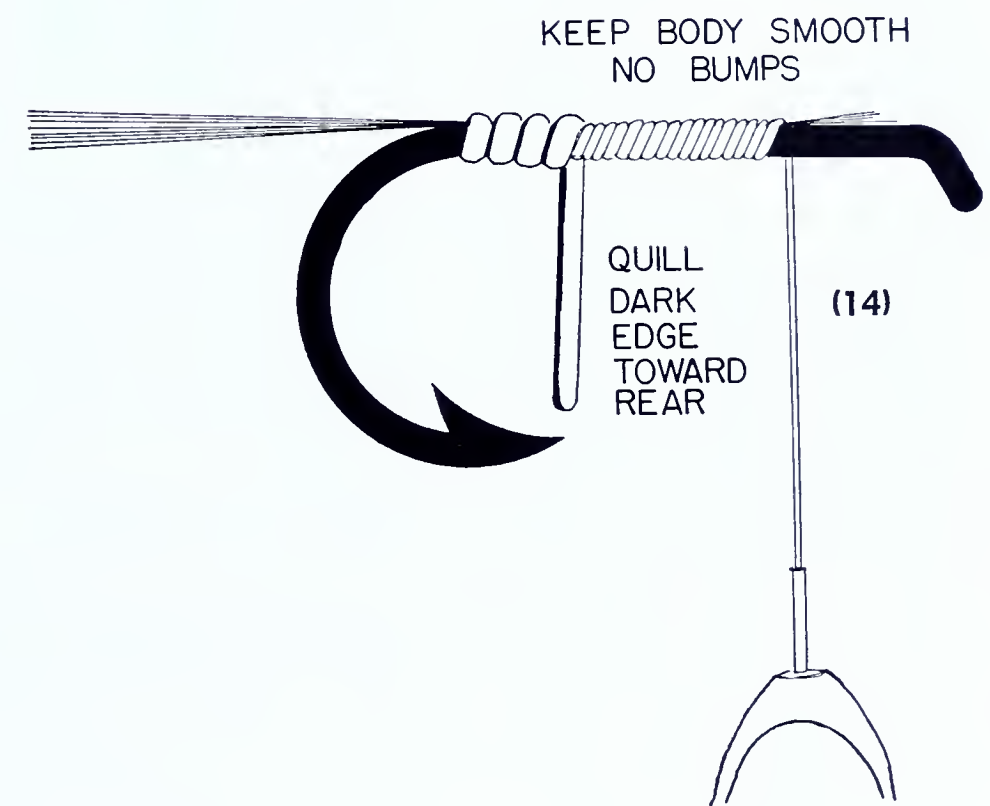
All fly bodies are wrapped on in precisely the same manner. Of course, they may vary in thickness and taper but the procedure is the same.

Diagram No. 11 illustrates the ribbed body. It shows the procedure and the correct order in which the body and ribbing material are tied on.

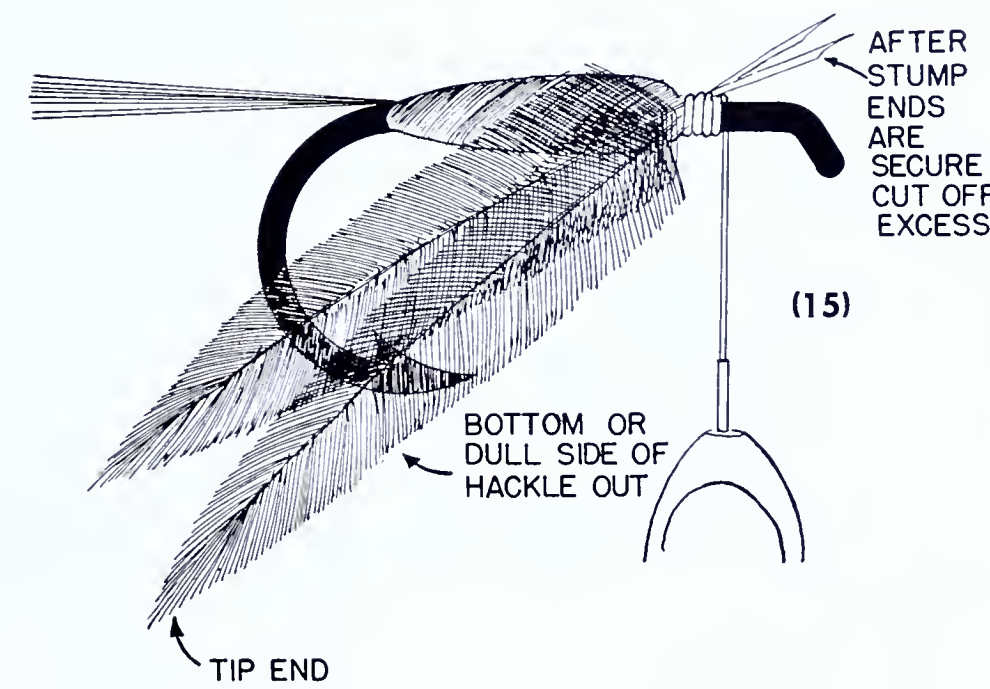
After the tail is secured, work the



(13)



(14)



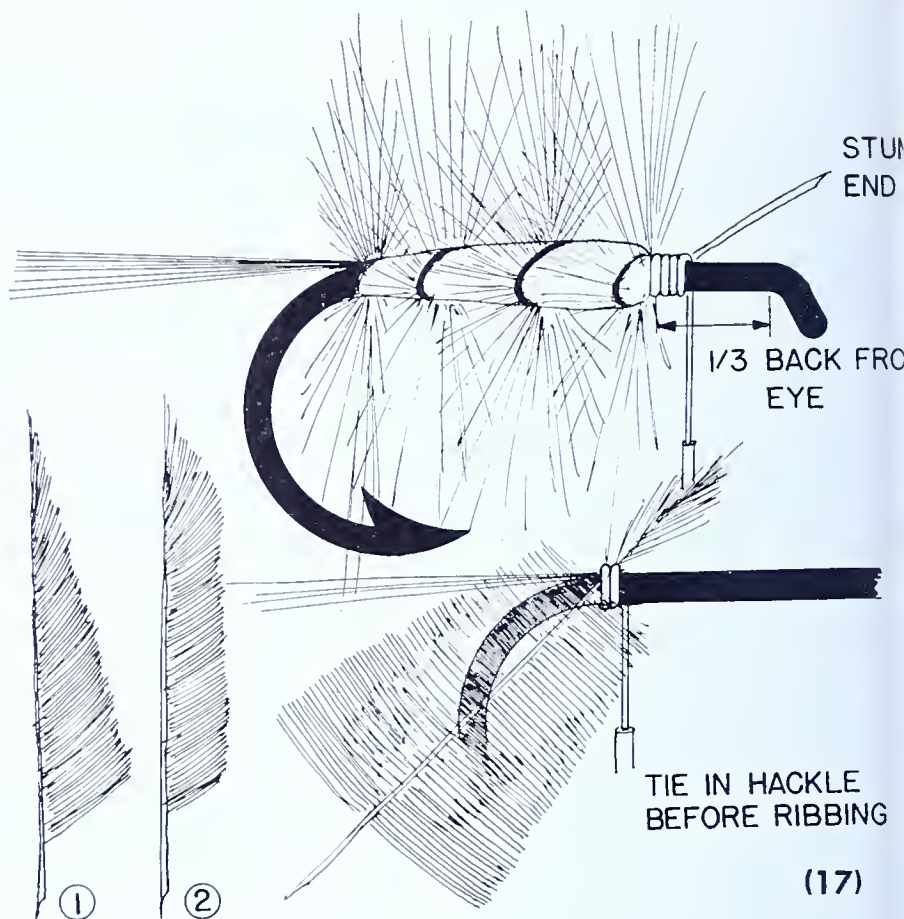
(15)



2ND HACKLE:
TIE OFF ON TOP

1ST HACKLE:
TIE OFF ON BOTTOM
& CUT OFF EXCESS

(16)



(17)

tying silk to the bend and tie in ribbing material here, (1). Now tie in body material (2); and spiral tying silk up to one-third distance of eye. Wind body material and tie off as previously described. Next, spiral ribbing over body and tie off. For the dry fly I prefer to have the body slightly tapered from the rear to the front end. Most fly tyers have trouble with the ribbing; in fact, many believe it is impossible to wind the ribbing so it will not slip. The way to overcome this difficulty is not to take any extra turns around the butt end of body before spiralling is started, nor to take any close turns in front of the body before tying off. Start to spiral the ribbing material immediately and when the front end of body is reached, tie it off at once. In addition, the spirals should be equi-distant apart on bodies that have the same diameter. On tapered bodies, the spirals should be progressively wider as one winds from the rear to the front of the body. A little experimenting on the part of any tyer will soon point out this trouble.

(Diagram No. 12)

There are many methods commonly used for fixing dubbed bodies. Diagram 12 shows the easiest and best method. After the tail is secured, work the tying silk to the position shown in the diagram, one-fourth up from bend. Now, hold the tying silk tight with left hand three or four inches

below shank of hook. To attach the dubbing to the tying silk, take a little fur between the thumb and finger of right hand and lay it on the under side of tying silk close to the shank of the hook. The index finger, at the first joint, should be placed under the dubbing to hold it against the tying silk. Now, squeeze tightly with tip of thumb as shown in diagram, and spin smoothly until tip of thumb reaches beyond end of index finger. Reverse operation without releasing pressure. Release thumb and finger; then take a little more dubbing and spin on below first. Repeat until you feel you have enough for the body. I like the dubbing to be spun on spindle shape with a longer taper at each end as shown in Diagram No. 13. After you have dubbed several dozen bodies, you will have no difficulty judging the correct amount of fur to use. Some feel wax is beneficial if applied to the tying silk before spinning on the dubbing. However, I believe they are following an old tradition passed on by the English tyers who did not have the advantage of a bobbin. I have no use for wax of any kind for any fly tying operation.

(Diagram No. 13)

You now have the fur secured to the tying silk. Notice you have a little space between top of dubbing and shank of hook. Take bobbin in right hand and take up excess tying silk

until dubbing just reaches the neck of the bobbin. Wind back free tying silk to bend of hook and wind body just prepared toward eye, building up body with slight taper as shown by dotted line overlapping if necessary. Stop one-third distance back of eye. If you have too much dubbing for the size hook you are tying on, pick off excess with thumb and finger of right hand. If you want the body to be fuzzy, as is often the case, take a dubbing needle and pick out fur until you have the desired effect.

(Diagram No. 14)

Quill bodies are quite easy to wind after one acquires the "light touch." I feel it is best not to start tying patterns with this type of body until you have tied several dozen flies. When using peacock eye quills as diagrammed, tie quill in by butt end so that dark side faces rear of fly. Be sure the shank of hook is smooth. Since this quill is not very substantial, many tyers rib it with fine gold or silver wire. You can rib it either clockwise or counter-clockwise. This greater strength of wire will help prolong the life of this quill body.

(Diagram No. 15 and No. 16)

We are now ready to tie a hackle dry fly. Remember, this dry fly is being constructed so that it will float on the surface of the water. Be careful in the selection of hackle. First of all,

the tail material should be from a large hackle (preferably throat hackle) with clear, stiff fibers. Instead of using only a few as you did in the wet fly, tie in enough fibers so that the tail and hackle will be strong enough to hold the hook clear if placed on a flat surface. Now, build up the body. Select two hackles for the size hook you are tying on, and strip off the fuzzy part at the stump end; in fact, you should strip off the bottom third. Otherwise, you will have trouble because a heavy quill makes the hackle very unruly to wind and it will be very difficult to make the fibers stand perpendicular to the shank of the hook. Tie in as diagrammed with the dull or bottom side facing out. Many tyers lay the hackles back to back, but I find a better fly results if they are tied in as described above.

Now, take the top hackle and wind as close together as is possible, with dull side facing eye. Do not continue winding until tight up against eye. If the hackle is wound too close to the eye, you will not have room to properly finish the head. Tie first hackle, when wound off on under side diagram (16). Take second hackle and make one complete turn against rear of first hackle, then work up through first hackle toward eye and tie off on top. It is a good idea to move the hackle pliers back and forth at the same time you are winding the hackle. This will help to avoid bending down the fibers of the first hackle. Complete fly with half hitches or whip finish (Diagram No. 18).

(Diagram No. 17)

The "palmer" type dry fly is just a term used to describe the hackle-ribbed body of a fly. Some patterns are tied without and others with wings. Any kind of body may be used.

Before you start tying, let us discuss the ribbing hackle. Some tyers always tie in hackle by the tip end and some go so far as to strip fibers from one side. On some hackle, the fibers will be progressively longer from tip to butt end as (1), while on others the fibers on the upper two-thirds of the hackle are quite even in length as (2). To me, this variation in fiber length is the determining factor in how I tie in the ribbing hackle. If the hackle is decidedly tapered, tie in by tip end. However, first hold hackle by tip and stroke fibers down toward stump end. This will allow you to tie in tip end without having too many fibers tied under.

If I have a relatively even fibered hackle, I remove the webbing at the stump end and tie in by stump end. I do not stroke fibers back with this hackle as I believe this stroking appreciably weakens the hackle fiber. In both methods, hackles are tied with the dull side out so that the dull side will face the eye when the ribbing is complete.

When tying a "palmer" wet fly, the top or shiny side of the hackle is out and faces the eye when the ribbing is complete.

Before starting to tie this fly, carefully study Diagram No. 11. Hackle is now taking the place of tinsel or

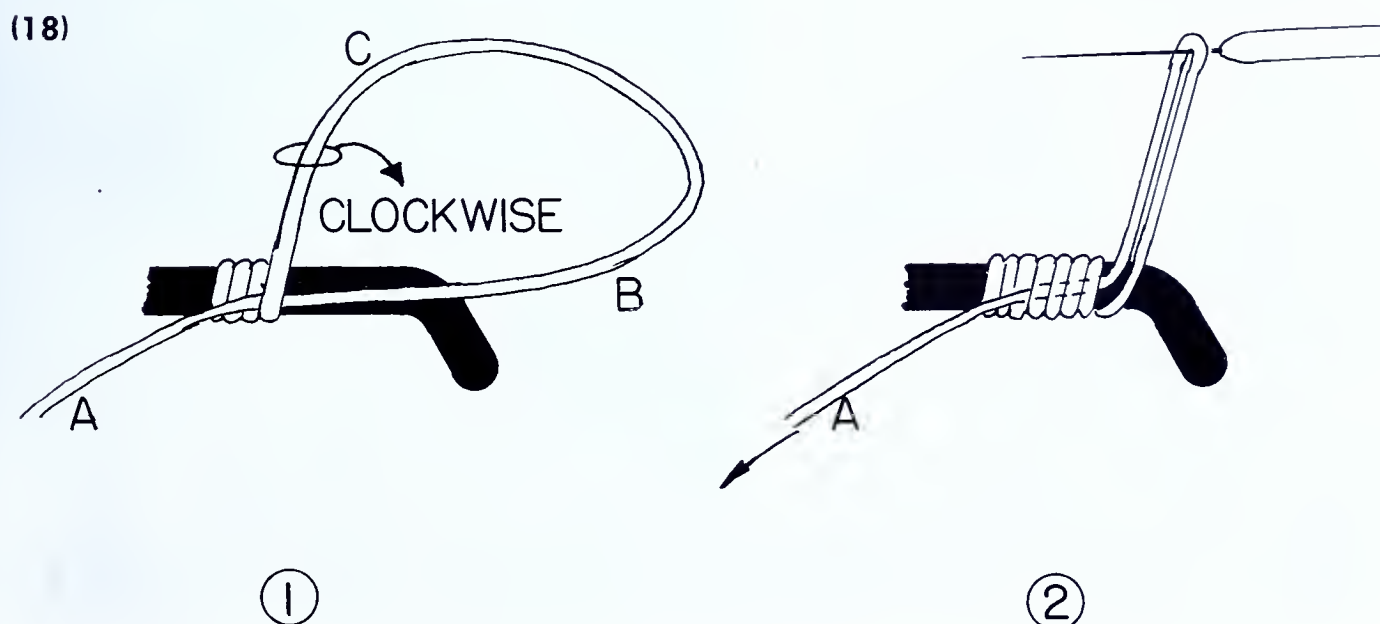
ribbing used in Diagram II.

Now we are ready for the actual steps. First, tie in the tail; next, the ribbing hackle; and last, the body material. Wind on body material and tie off one-third distance back of eye. Take hold of ribbing hackle with hackle pliers and immediately begin to spiral. As soon as front end of body is reached, tie off. The reason for this procedure was thoroughly explained under diagram No. 11. Complete fly as described in diagrams No. 15 and No. 16. Be sure that front hackles are tied in so that when they are wound on they will make contact with the ribbing hackle. There should be no space between ribbing and front hackle.

(Diagram No. 18)

Every tyer should know how to make the whip finish. After the head of the fly has been formed, throw on one half hitch. Form loop as in (1), holding top of loop (C) between index finger and thumb of right hand and bottom (B) with left hand. After (C) clamps (B) against shank, let go of (B) and wind clockwise using both hands to make additional turns. Each turn must go over tying silk between (A) and (B). When sufficient turns have been made (four or five), insert dubbing needle in loop, hold firm and draw tight by pulling at (A). Slip needle out as knot pulls tight. There are special tools for this knot but, with practice, one can tie it more quickly by hand.

(To Be Continued)



Scheme for Streamers

by DON SHINER

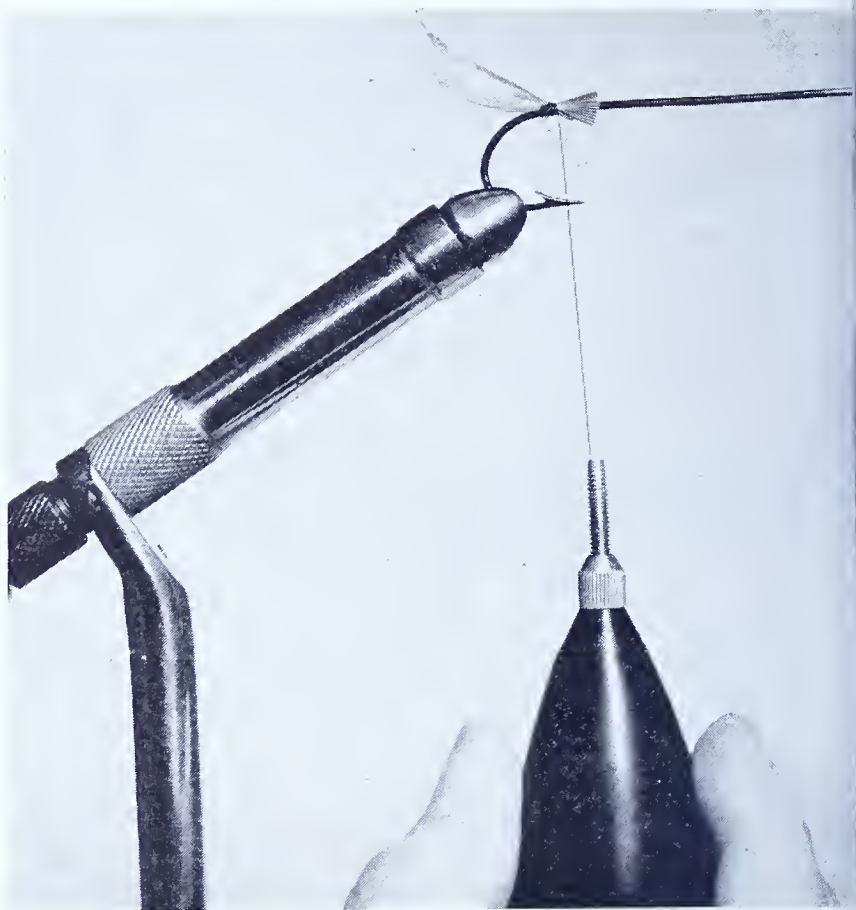
ARGUMENTS rage pro and con on the topic of what streamer flies appear to be in the eyes of game fish, but the undisputed fact remains that they are appealing flies to the fish in Pennsylvania's streams. Brown trout, whopping big bass, pike, and panfish too will pursue colorful streamers that happen to dart near them. Though the streamer's origin is steeped in ancient history, credit for the introduction of this fly into sport fishing seems to go to the renown Theodore Gordon who in his writings, as early as 1880, describes the streamer. Since then many other eminent personalities have added valuable information on streamer flies, their construction and technique when angling with them.

For the angler whose interest has become aroused in the art of fly tying, the streamer is an excellent fly to begin with, few rules held rigidly when making this feathered lure, nor are there any set of specifications instituted when selecting materials. It is therefore fitting this fly be selected to show the basic steps.

The basic steps in tying a streamer are shown here and except for a few alterations in procedure and a variation in materials, dry flies, wet and nymphs are made fundamentally the same. Though the tiny wet and dry flies are somewhat more difficult to make, after turning out a few dozen large streamer flies, the fisherman can acquire the necessary experience to take the head long plunge into the fine art of making the great varieties of feathered lures.

Actually fly tying is one of the most interesting hobbies anglers can acquire. The construction of the flies is, in itself, a most fascinating activity, not omitting the fact that it can become an obsession after catching fish on them!

If you have had the desire to make your own flies, don't put it off another season. Begin now! Purchase a vise, a pair of scissors, some feathers and yarn and begin making streamer flies. Let your imagination go where it will when selecting colors and materials. The color combinations give the streamers decided appeal to the game fish and many will creel fish consistently. Study this article and the illustrations carefully, then go to work at this art which history tells dates back a thousand years!



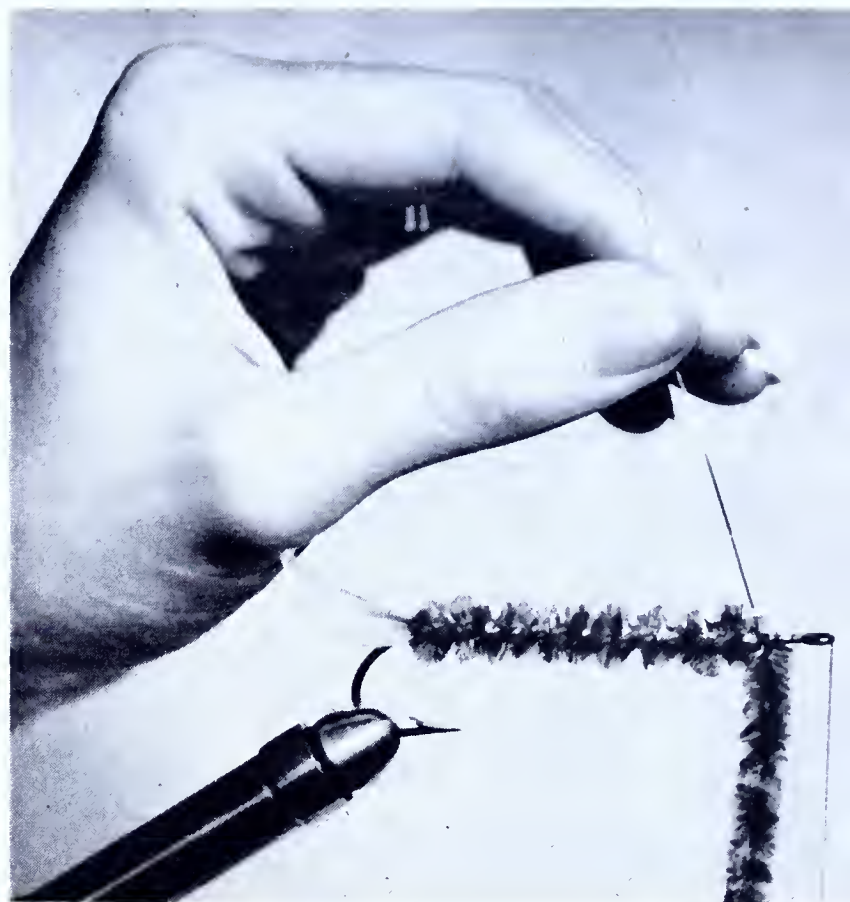
1. Begin streamer by inserting hook into vise. Cut a section of a quill feather, wind tying thread around hook and material to form the tail.

4. For wings, select four or five hackle feathers, hold on top of hook to the rear of the eye and wind the tying thread over feathers and hook to hold them securely. Cut off butt ends of feathers.





2. Tie a piece of chenille or wool yarn and a short piece of tinsel to hook by wrapping tying thread over material and shank. This will be used to make the body on the fly.
5. Add topping and cheek to fly, then wind thread over head of fly to cover all ends of the material. Tie off with a few half hitches or use the whip-knot.



3. Wind the chenille around shank to within a quarter inch of eye, then half-stitch the tying thread over chenille to hold it securely. Go back and wind tinsel spirally over chenille. The bodies of most flies are made in this manner.
6. Complete the streamer by coating head with lacquer or cement to prevent thread from unraveling.



DON'T turn your nose up distastefully because they're suckers! If you try this fishing, you'll find it every bit as enjoyable as any other experienced throughout the year. For the sucker provides the season's earliest opener, and as such, should receive a glad hand of thanks.

As soon as the weary frosts of winter make room for the earliest breaths of spring the sucker is already moving up river. For those who know about him he provides an impatient bustle in the sportsman's household.

The icicles outside melt, perhaps only for a day. Their patient dripping throughout the thaw make many a sucker fisherman scurry for the closet in search of tackle which so casually may have been tossed aside the fall before.

How do you fish for suckers? Well, it's as easy as falling off a log. Many streams of Pennsylvania are inhabited by these fish. However, you've got to remember that by law you can't fish the entire month before trout season opens (March 15 to April 15).

Suckers start their spawning runs even before the ice is completely off.

I can remember many a day when our lines froze like copper wire and yet the fishing was good. At other times I can remember when we had to break thin ice away from a shoreline for ten feet or so before we started our fishing! In fact, if you're hankering for something to do, you can chop a hole through the heavier ice of late winter and try it that way. The sucker is quite obliging. He'll even bite on days such as these and the cold weather makes him a particularly palatable fish at this time.

Promising fishing is had where a riffle whirls down into a pool especially if the water circles and eddies around bringing with it early spring food. Better still is the sucker fishing if a feeder run is trickling water into a deep pool of a large stream.

Go out when the weather breaks even for a day or two and when the stream is neither too murky nor crystal clear. The fishing is done with almost any tackle with sinkers of $\frac{1}{2}$ to 1 ounce weight terminally attached to the line. Two or three hooks, leadered, with about 6 or 8 lb. leader, dangle from the line about a foot, two feet,

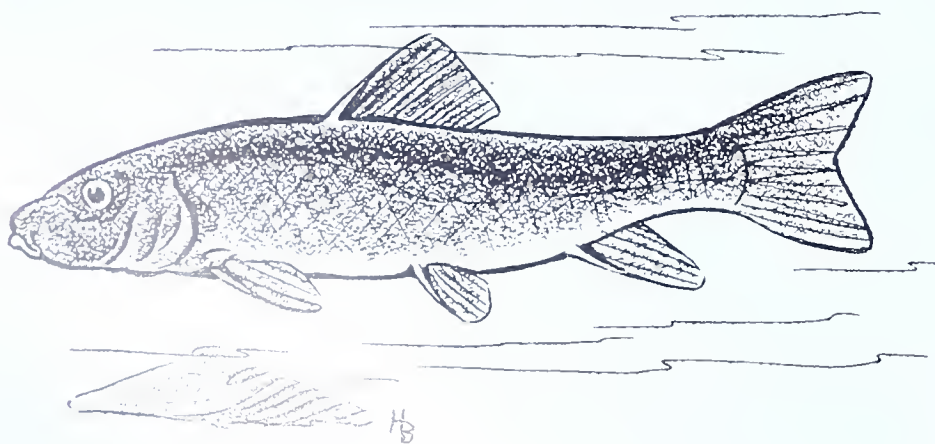
and three up from the sinker. Any small hook will do. Since the fishing often comes and goes in spells, a brisk fire is in order (be careful) and much of the fishing is taken up by poking the flames, cooking an occasional bit of meat, baking potatoes, and "batting the breeze." It's the early refreshing feeling that you get from it after a cooped up winter that makes it such a pleasant occasion, even if the little woman says you come home smelling like an over-smoked ham. "Ham" it might be, but madam, let's not get too harsh!

Back in the days when the fish were so plentiful near my home, we'd often spend day after day sucker fishing. Fishermen trekked to the stream from around the countryside and settled on both banks throwing lines over each other. It's amazing the amount of fish the stream gave up, often two or even three fish being caught at once when a school was on the move. The fishermen showed a conglomeration of favorite tackle yet almost everyone caught fish. This, too, is one of the happy experiences of this type of fishing—fish generally are caught in plenty, the black sucker being the preferable eating fish. It is smaller, darker in coloration, has less bones, and smaller sized scales than its companion the white. Black suckers will generally range around a foot long, white about fourteen inches but sometimes a fish up to five pounds is caught. Even larger are the "red horses," but they inhabit the larger rivers.

I can remember the days as a youngster when we so eagerly anticipated the going away of the frosts and the melting of the snows. The black and white sucker prefer the common garden worm and it makes fishing all the easier, since no particularly hard to get bait has to be sought if worms are dug during a mild spell and kept over in some sort of large container. Back in my kiddo days, too, the sucker fisherman took along with him some source of entertainment, a harmonica occasionally peeling forth with the strains of "Comin' Round the Mountains," "Them Golden Slippers," or "Old Black Joe." There was exhilarating fun in the use of an axe, to replenish the fire, and amidst the jolly noise of the crowd, the sizzle of coffee, and the hiss of slow burning logs, a good time was always had by all. Fly fish only for trout, or plug only for bass? Maybe that's all you've done before, but there's more to the fishing year than just that.

Sucker

Strategy



By THAD A. BUKOWSKI

Almost Skunked!

By S. R. Slaymaker, II



MUCH has been said and written about the selective feeding habits of trout. A multitude of stories on this subject had been read by yours truly.

To be sure, I was ready to accept the principle in its widest sense—namely, that some fly patterns and colors are more effective in certain areas than are others.

By selective feeding, I mean the taking of one particular food, by trout in a given stretch of water, when differing forms of aquatic and insect life present themselves.

So, although not wishing to argue with the experts, I must confess to a certain amount of skepticism when it came to tales that have been told about the trout's ornery disposition.

And so it was with me until an early spring day during the 1950 season. Then it happened! Truly a most unforgettable experience.

My partner on that memorable weekend was Ralph Eby, Jr., attorney of Lancaster, Pennsylvania. We were to be the guests of a charming lady—an old family friend—who lives in a small hamlet in northeastern Pennsylvania. The surrounding mountains have several very lovely streams which we had never fished before, and these streams contain good quantities of trout. The waters are well stocked, but also, the carry-over of fish from one season to the next is large enough to allow excellent spawning. In one stream in particular, fine catches are made throughout the entire season, so our hostess had every reason to believe that her guests were to experience the optimum of success.

We started fishing at ten a. m. of a cold and wet day in early May. We planned on fishing a three and a half mile stretch of beautiful water recommended by the natives as the most productive of any thereabouts. The water was fairly high and what with the cold weather, we were not surprised to find that no fly hatches were in evidence.

After deciding on streamers we split up, working up the stream with about one-half mile between us. Throughout

the morning and early afternoon I worked the streamers hard—particularly the Mickey Finn and Black Nose Dace, to absolutely no avail, and such was the case with my partner. Both of us had come across one other angler who had fished streamers and wet flies with no result.

During the afternoon and evening we fished hard with just about every wet fly in the book—still no action. We spent a good part of the evening discussing the day's lack of events. In comparing notes, we realized that we hadn't given nymphs any kind of a test.

I had never been very successful fishing nymphs—indeed, I did not much enjoy fishing them what with the care involved in presentation, the uncertainty connected with striking the fish, and of course, the fact that initial action is underwater. But what mode of attack was left, except a resort to nymphs? Neither of us had much experience fishing with them.

So, that night we carefully went over my nymph collection. It was limited to a small assortment of very excellent factory imitations of caddis worms and fresh water shrimp. In the strictest sense, of course, these aren't nymphs—nymphs being the intermediate stage between worm and fly, but the general nomenclature of such creepers and crawlers seems to be nymphs, so I shall let this terminology suffice.

The next day brought rain in intermittent squalls. We went back on stream early as my partner had to return to Lancaster early in the afternoon. Very briefly, it was cold, wet and unproductive fishing. At noon we returned to our hostess' home, where there ensued that not uncommon fisherman's end of the day dissertation. You know it—"no fish, but ain't nature wonderful—swell to be out in the open; the wild life, flowers, trees. The rain stopped in early afternoon, so back to the stream I went.

Shortly after starting again, it became necessary for me to engage in conversation a man of marked backwoods appearance. At least his following me along the stream for 10 or 15

minutes with nary a word, but a critical scrutiny of my every move, was enough to indicate his desire to talk.

He didn't talk much, this ancient out-of-doors rustic, but what he said was enough to change the entire complexion of this trip, as well as my overall concept of how trout can best be caught. After asking me what I had used, he went carefully over my entire fly assortment, finally coming out with a dog-eared offering which I had all but forgotten. This bedraggled wet fly had been tied about three years before by my good friend, John Stauffer of Lancaster, without any doubt one of the most accomplished trout fishers in this or any State.

I had used the fly several times previously without success. It had become worn, and to my eye did not look very effective, so, quite unconsciously, I had allowed it to take a back seat. My acquaintance looked at it carefully, dunked it in the water, looked at it again, and proffered it to me with something like the following explanation:

"Them creepers and crawlers you been fishin' ain't the nymphs the fish want now. They must want nymphs that are 'bout to hatch—nymphs that's movin' up."

Here we went again—science, at its hairsplitting best!

"This here fly looks about the color of the hatchin' creepers you see around here," he murmured, "put it on and give her a try."

After attaching the battered lure, just as I was addressing myself to the first cast, there came a disturbed growl from behind—"There's no use makin' that cast—you ruined the works already." With some effort I asked quietly what he meant by the latest bit of advice.

"You're standin' up straight—take cover, git down." I realized that he was right. The long grind, with no luck, had left its bad effects on my fly presentation; so, moving cautiously up-

(Turn to Page 28)

Excerpts from the Minutes of Meeting of the Pennsylvania Fish Commission held at Harrisburg, November 17, 1952

In accordance with Chapter 3, Article 3, Section 100, of the Act of May 2, 1925, P. L. 448, as amended, the Pennsylvania Fish Commission makes the following rules and regulations in connection with the taking of fish from Lake Erie for commercial purposes.

It is hereby further provided that the Pennsylvania Fish Commission reserves the right without further notice to make such further rules and regulations as may be deemed necessary for the better protection of fish or fishing during the current year 1953.

(a) The licensee of any licensed boat is hereby authorized to retain any yellow perch which may be taken.

(b) The licensee of any licensed boat will not be allowed more than five percent (5%) of under-size fish in the daily catch. Said under-size fish must not be exposed for sale, but must be turned over to some hospital or charitable institution.

(c) No gill nets shall be used in Pennsylvania water more than thirty (30) meshes in depth.

(d) The minimum size for gill nets shall be known as *Three-inch mesh*. The size of mesh for gill nets to be used in taking white fish and lake trout shall be known as four and three-quarter ($4\frac{3}{4}$) inch mesh. All mesh or meshes in gill nets or other nets that may be used in fishing shall be measured over a standard steel rule (or plastic if steel cannot be obtained), as approved by the United States National Bureau of Standards. For the measuring of gill nets a solid steel scale, approved by the N. B. S. shall be used. The size of the rule to be used in measuring small mesh nets shall be three (3) inch. The size of the rules to be used in measuring large mesh nets shall be four and three-fourths ($4\frac{3}{4}$) inch. (All netting mesh is to be measured to scale.)

(e) No gill nets shall be used in Pennsylvania waters of a size of mesh between three and one-eighth ($3\frac{1}{8}$) inches and four and three-fourths ($4\frac{3}{4}$) inches.

(f) The licensee of any licensed boat shall furnish the Superintendent of the Erie Fish Hatchery on or before the 15th day of the month following, state-

ment showing the daily report of catch out of the Port of Erie. Forms to be furnished by the Pennsylvania Fish Commission. This information shall be considered confidential insofar as the Fish Commission is concerned and will only be used in submitting totals to the authorized agent of the United States Fish and Wildlife Service compiling the statistics covering catches out of the various ports on the Great Lakes.

(g) **CLOSED SEASON.** From December 31, 1953 to March 1, 1954, (both dates inclusive) it shall be unlawful for the licensee of any licensed boat for the taking of fish for commercial purposes to use *any net of any character*.

Rules, Regulations, and License Fees for Trap Nets in Area Where Permitted for the Year 1953. (Pennsylvania Waters)

In accordance with Chapter III, Article 3, Section 100 of the Act of May 2, 1925, P. L. 448, as amended, the Pennsylvania Fish Commission makes the following rules and regulations in connection with the taking of fish from Lake Erie for commercial purposes with trap nets.

No trap nets of any description shall be set and fished within sixteen (16) miles of the Port of Erie. In addition, they shall not be set and fished within three-quarters of a mile from shore, in area where permitted, measured from shore in a direct line.

Minimum size mesh for trap net lifting cribs shall be known as $2\frac{1}{2}$ " mesh to be measured over a solid standard U. S. Rule as approved by the National Bureau of Standards.

The licensee of any trap net boat will not be allowed more than five percent of undersize fish in daily catch. Said under-size fish must not be exposed for sale, but must be turned over to some hospital or charitable institution.

All trap nets must be plainly marked with a buoy with the owner's name and address or confiscation will be made.

In connection with the above Rules and in accordance with Chapter III, Article 3, Section 90, Paragraph (f),

the Pennsylvania Fish Commission prescribes the following license fee to fish trap nets in the area where permitted for commercial purposes as follows:

All trap net licenses—\$20.00 per net.

The licensee of any licensed boat shall furnish the Superintendent of the Erie Fish Hatchery on or before the 15th day of the month following, statement showing the daily report of catch out of the Port of Erie. License may be suspended for failure to report. Forms to be furnished by the Pennsylvania Fish Commission. This information shall be considered confidential insofar as the Fish Commission is concerned and will only be used in submitting totals to the authorized agent of the United States Fish and Wildlife Service compiling the statistics covering the catches out of the various ports on the Great Lakes.

CLOSED SEASON. From December 31, 1953 to March 1, 1954, (both dates inclusive) it shall be unlawful for the licensee of any licensed boat for the taking of fish for commercial purposes to use any net of any character.

Rules and Regulations Relative to Live-Bait—1953

The Pennsylvania Fish Commission has set up the following rules and regulations on bait-fish and fish-bait:

LAMPREY EELS CANNOT BE USED FOR BAIT IN ANY OF OUR INLAND WATERS.

Every minnow box anchored in a stream, pond, lake or place of residence must have attached thereto the owner's name and address and fishing license number. If maintained by more than one person, it must be in sections and each section must have owner's name and address and license number.

Pennsylvania fishermen are also permitted to take bait on a fishing trip either within or without the State provided the possession limit is not exceeded and the bait are for his own use. If there is more than one fisherman, bait must be in separate containers or a divided minnow box or bucket.

Special Notice—Bait Imported into Pennsylvania

No person or persons are permitted

to bring bait-fish or fish-bait into Pennsylvania for resale without first securing a permit issued by the Pennsylvania Fish Commission, Harrisburg, Pennsylvania. In making a request for a permit, all persons must supply the Commission with name and address of the person or dealer from whom bait-fish or fish-bait are to be purchased, species of bait they desire to transport, number, place of business where fish will be resold, etc. Dealers must keep a record of all fish bait or bait-fish purchased under their permit and copies of bill of sale to individual fishermen which must check with purchases made.

PENALTY FOR VIOLATIONS OF ABOVE—TWENTY DOLLARS, as provided for under Section 251 of the Act of May 2, 1925, P. L. 448, as amended.

Bait-fish or fish-bait taken from our inland waters **CANNOT BE SOLD** within the Commonwealth or transported outside the confines of the Commonwealth for sale, except this ruling does not prevent a fisherman from taking his own bait from public waters, but under the law he cannot have more than thirty-five (35) bait-fish or thirty-five (35) fish-bait or fifty (50) of the combined species unless purchased from a Commercial dealer who operates under a license issued by the Commission, or from a dealer who has purchased them from a Commercial Hatchery. Penalty for violations in accordance with the provisions of the Fish Laws.

CHUBS UNDER SIX (6) INCHES CAN BE USED AS BAIT-FISH UNDER NEW AMENDMENT TO THE FISH LAWS. Penalty for violation in accordance with the provisions of the Fish Laws.

No fishing is permitted in any waters from midnight March 14 to 5 A. M., April 15, except that bait-fish and fish-bait can be taken in rivers, lakes, and ponds not stocked with trout. Penalty for violation in accordance with the provisions of the Fish Laws.

Sunday Fishing for Fish-Bait or Bait-Fish

Under an amendment to the Sunday Fishing Law, bait-fish or fish-bait may be taken on Sunday with the same devices used on week-days, i.e. two rods and two lines with not more than three (3) hooks attached to each line; a dip net or minnow seine not over four (4) feet square or four (4) feet in diameter; a minnow trap with not more than two (2) openings which shall not exceed one (1) inch in

diameter. The rods, hooks, and lines must be under the immediate control of the persons using the same. Penalty for violation in accordance with the provisions of the Fish Laws.

Waters Closed as Nursery Waters and All Fishing Prohibited Until July 31, 1953

County and Name of Stream or Water **BERKS**

Egelman's Reservoir

Orphanage Run or Seltzer Run or Hoffas Run, tributary to Tulpehocken Creek—Three ponds and 500 yards of stream.

Seisholtz Dam

Peters Creek

BLAIR

Clover Creek, tributary to Franks-town Branch, Juniata River from the point where Legislative Route #07001 crosses the stream at the Bedford County line to the head of the stream, a distance of about two (2) miles.

Poverty Hollow Stream, tributary to Piney Creek, about three (3) miles long.

Kneidingers Dam—1/3 acre

McMahon's Dam—1/2 acre

Dr. Mattes Dam—1/2 acre

Bald Eagle Sportsman's Assoc.—one pond located in Snyder Township.

CAMBRIA

Project of Cambria County Game Protective Association covering one pond fed from Trout Run located in the town of Puritan and owned by the Portage Water Company and one pond fed by Piper Run and owned by Dr. Benko.

CLINTON

Gottshall Run—Stream closed for protection of water supply.

Section of *Main Kettle Creek* below State Forestry Dam for a distance of 200 yards from the breast downstream.

CRAWFORD

Pymatuning Sanctuary

ELK

Whetstone Run, from and including the Brockway Reservoir and all waters of the same Run to the source. Closed for protection of water supply.

LANCASTER

Stream running through Public Park at Lititz. (Exhibition)

Donegal Nursery located in East

Donegal Township, Lancaster County. Request of Mount Joy Sportsmen's Association.

LEBANON

Nursery Ponds of Millcreek Rod and Gun Club.

LEHIGH

Waters of Trexler Trout Hatchery, Allentown, Penna.

LYCOMING, Potter and Tioga Counties All tributaries of Slate Run

The following tributaries of Pine Creek: Headwaters of Upper Pine Bottom Run, tributary to Pine Creek; Ott Fork, tributary to Upper Pine Bottom; Headwaters of Lower Pine Bottom; Headwaters of Trout Run.

The following tributaries of Lycoming Creek: Buckhorn Branch of Hoaglands Run; Headwaters of Stoney Gap Run, tributary to Hoaglands Run.

NORTHAMPTON

Race running parallel to creek along Bath Pike in northwestern section of Bethlehem, Bethlehem Township, 180 feet.

PIKE

Portion of Pecks Pond, above wire on E. Branch Inlet.

Portion of Promised Land Lake.

VENANGO

Lower Two Mile Run, Section within Waltonian Park. (Exhibition)

WARREN

Dedman Run, tributary to Spring Creek, 1/2 mile.

Greeley Run, tributary to Spring Creek, 3/4 mile.

WAYNE AND PIKE

Lake Wallenpaupack, within 750 feet of the dam.

WESTMORELAND

Pools No. 1 and 2 of the Westmoreland County Sportsmen's Association located above Rector-Forbes Forest Game Refuge.

Streams Close As Nursery Waters Until July 31, 1954

BERKS

Little Furnace Creek, tributary to Furnace Creek.

CRAWFORD

Pymatuning Reservoir, the area extending from the spillway of the

dam to the weir erected across the stream, a distance of approximately 500 feet.

LUZERNE

Kitchen Creek, the section located in Ricketts Glen State Park.

MONROE

Lower Broadheads Creek, from upper Percy Crawford Bridge to lower Percy Crawford Bridge, approximately 500 yards.

Streams Closed As Nursery Waters Until July 31, 1956

LEBANON

Indiantown Gap, memorial lake on Indiantown Gap Military Reservation.

Streams Close As Nursery Waters Until July 31, 1957

BERKS

Nursery Project of Hamburg Fish and Game Association.
Nursery Ponds of Daniel Boone Rod and Gun Club, Oley.
Nursery Ponds of Lebanon Valley Sportsmen's Assoc.—Wernersville State Hospital Stream, tributary to Spring Creek.

CAMBRIA

Nursery pond of Cresson Community Sportsmen's Assoc.—Located in Conemaugh River.

CRAWFORD

Lakes on Property of Keystone Ordnance Company.

JEFFERSON AND ELK

Rattlesnake Creek, tributary to Little Toby Creek, 3 miles, from ½ mile below Brockway Reservoir to source.

NORTHAMPTON

Nursery ponds under control of Hellertown Sportsmen's Association.

Waters Having Special Regulations for the Year 1953

Fishermen must be guided by rules and regulations posted along streams regarding size, season, number, lures, etc.

SLATE RUN (Lycoming and Tioga Counties)

Special regulations applicable to the entire stream of Slate Run beginning at its source which is formed

at the junction of the Francis and Cushman Branches in Elk Township, Tioga County, and extending in a southwardly direction a distance of approximately one-fourth mile into Brown Township, Lycoming County, continuing in a southwardly direction in Brown Township, a distance of approximately seven and one-fourth miles to a point where it empties into Pine Creek, opposite the town of Slate Run, Brown Township, Lycoming County.

YOUNG WOMAN'S CREEK (Clinton County)

Special regulations applicable to Right Branch of Young Woman's Creek, including all of the Main Section of the Right Branch from its confluence with the Left Branch to and including the pool under Moo Hollow Bridge, a distance of approximately seven (7) miles.

ROCK RUN (Lycoming County)

Special regulations applicable to stream from the town of Ralston upstream to Yellow Dog Branch, a distance of six (6) miles.

The rules and regulations covering the three above named streams are as follows:

Season and Hours. These streams may be fished only from April 15 to July 31 inclusive between the hours of 4:00 A.M., E.S.T., except April 15 when the season does not open until 5:00 A.M., E.S.T., and 9:00 P.M., E.S.T.

Permissible Lures. Only the following lures may be used on these streams:

(a) Artificial flies usually made of hair or feathers or similar material with a single point barbed or barbless hook.

(b) Live bait with a single point barbless hook.

(Note: This excludes all types of artificial lures made of wood, metal, plastics, etc., and all types of lures containing more than a single point hook. It also excludes all types of spinners or spinner attachments or any other lures not mentioned in (a) or (b).)

Devices. No person shall use any device or method whatsoever for taking fish from these waters, except by the use of one single rod and line to which is attached not more than one single pointed hook as permitted above.

Daily Limit. It is unlawful to catch and take by angling in these

streams or to possess while angling thereon or in the immediate vicinity thereof, more than six (6) trout in any one day.

Minimum Size. All trout caught and taken from these streams had in possession while angling thereon or in the immediate vicinity thereof must be at least nine (9) inches in length.

"Bait-fish" or "fish-bait." It is unlawful at any time to catch or take "Bait-fish" such as minnows, killifish, etc., and "fish-bait" such as crawfish, known as crayfish, crabs, crane flies, water-worms, mussels and hellgrammites, etc., from these waters by angling or otherwise.

Prima facie evidence. In all cases of arrest for the violation of any of the provisions of these regulations the possession of the fishes or of the nets or appliances or the possession of, or operation of any device herein prohibited shall be prima facie evidence of the violation of these regulations.

These rules and regulations shall be strictly enforced. Your strict observance thereof will not only avoid penalties but also assist the experimental program of the Pennsylvania Fish Commission designed and intended to improve fishing on these streams.

You are requested to refrain from using live minnows so that undesirable species will not be introduced into these streams.

When releasing trout, run your hand down the line of the fish under the water and hold it by the lower cheek between the thumb and forefinger while removing the hook. This will save many small trout. BE A SPORTSMAN—observe these regulations and help make fishing better for yourself and your fellow anglers. If you would catch more trout you must kill less.

DUNBAR CREEK (Fayette County)

Special regulations applicable to stream beginning at a point above the Dunbar Corporation Dam to the headwaters.

The rules and regulations on the stream are as follows:

Season and hours—Fishing permitted on this stream only from April 15 to July 31, inclusive, between the hours of 4:00 A.M., and 9:00 P.M., E.S.T., excepting April 15 when the hours shall be from 5:00 A.M. to 9:00 P.M., E.S.T.

Fishing on dates other than specified above is prohibited.

Legal minimum size limit for trout is nine (9) inches.

Legal minimum size limit—eight (8) inches.

Special regulations applicable on this stream from Route 62 in the vicinity of Polk in a northwardly direction for a distance of approxi-

Number of trout per man per season—thirty-six (36).

Fishing permitted only from April 15th to July 31st, all dates inclusive, between the hours of 7:00 A.M. and 7:00 P.M., Eastern Standard Time.

There must be no tampering with the water appliances or fish.

These outdoorsmen were a breed of men who tamed an almost untamed wilderness. They were the essence of enthusiasm and unconquered horizons. They challenged the forested frontier. No group of men in all our history was

Like the last raft that sails swiftly by in the shadows of a deep and lasting memory; like the banshee, swishing moan of a last typical virgin white pine falling in the hills along the Sinnenamahoning, like the last metallic whine of a thousand saws in a half-hundred mills in Lumber City, that epitomized the great lumbering indus-

try in this State—sounds which we shall never again hear in their lusty immensity—are the legends and folk tales and ballads of the lumber camps and the river rafts. These tales, too, have almost slipped away with the passing of the men who were the courageous heroes of a striking, bristling era. Legends, folk tales and camp songs obtained today are second-hand and, no doubt, have lost something in the transition.

Few writers have attempted to record the great tales of the lumber camps and the lumber rafts, gigantic tales of a gigantic industry where gigantic trees were felled by gigantic men and taken to market over the waterways by men of strong heart and great stature. Academic historians have almost forgotten the Pennsylvania woodsman, the log driver and the raftman. The few books and articles that have appeared have only scratched the surface of this wonderful field of legend and folklore and lusty, lumber history.

One bright day in a Springtime of unforgettable memory, when a trout stream was singing a siren song in north-central Pennsylvania, I temporarily quit my fishing to sit on a log and light my pipe. The match stick was of pine—one could smell the pungent, appealing odor above that of the sulphur. I watched the stick burn down and when there was no glow I crushed it into the damp mold at my feet. Doing this I thought “there goes the end of an era—an empire of evergreen wealth of pure, virgin white pine and hemlock that completely covered the headwaters, and the tributary streams, of the Susquehanna, the Allegheny, the Clarion, the Delaware.

There is still a chance to collect more of the folklore and legends of those grand days, but the flood stage of such garnering is akin in its shortness to the flood stages of a few comparatively short weeks in other Springtimes when heavy melting snows and pelting rains crested waterways providing the facilities to carry rafts and logs down smaller streams to the briefly busy tides of the rivers.

There never has been a serious book about Pennsylvania's one-time great lumber industry and the great and hardy woodsmen who made it possible—all of them marksmen, skilled to the highest degree in woodcraft, the outdoors, in hunting or fishing.

The Pennsylvania woodsman—often he was called a wood hick—was truly a pioneer who braved many dangers.

suffered many hardships, lived lustily, drank thirstily. He was a tough, hardened, virile man with a soft soul and a big heart. The passing of Pennsylvania's primeval forests laid him low—but he left his mark.

In the red-eyed, red-nosed heyday of lumbering, rafting and stupendous sawmill operations there were 50,000 woodsmen—of one kind or another, axemen, sawmen, teamsters, blacksmiths, raftmen, log drivers and so on—in the Pennsylvania hills. If the tales seem tall, remember the woodsman was a giant among men in forests of gigantic trees. He was an individualist. It is too bad he is gone! He was a rough, tough man. He ranged throughout the areas where the great forests existed and where big rivers ran to carry logs down to the mills. There is so much of the life of our brave, carefree lumbering and rafting days that should be in print for reading by a comparative listless, soft generation. These loggers, woodsmen and raftmen were almost indestructible. The wild color of their lives is something to record; it spelled an era of picturesque greatness we shall never see again.

What about this lumber business in Pennsylvania?

As early as 1810, fragmentary studies by the United States Census showed there were 2,016 sawmills in Pennsylvania. At the same time Massachusetts, which then included Maine—and the lumbering industry is said to have started in Maine—had only 150 sawmills. In 1840 figures became more complete and reliable. New York State then was credited with 6,356 mills and Pennsylvania was next with 5,389. The first spurt in lumbering in Pennsylvania came in 1838. That year the first sawmill was built at Williamsport, which was later to see 50 sawmills operating, to give it the very apt title of Lumber City. In 1860 Pennsylvania had more mills than any other state. In the Williamsport area construction of the booms—great reservoirs to hold logs that came down stream—gave a great impetus to business there.

So, from 1850 to 1870 Pennsylvania held a high place in the lumbering industry, holding first place in 1860 but relinquishing that position to Michigan, a comparative upstart.

When 1870 arrived the total production in the United States had risen to 13 billion board feet. But most mills continued to be in Pennsylvania.

It is difficult to determine the aggregate timber production for the four great river valleys of Pennsylvania.

While great quantities of timber were cut on the headwaters of the Allegheny and the Delaware, it is without question the Susquehanna river watershed, especially that of the West Branch, provided the most. That river system drains 20,917 square miles in Pennsylvania alone. Put a bit differently the Susquehanna river system in the Keystone State drains an area 157 miles in length and 161 miles in width. The Susquehanna is the typically Pennsylvania stream.

The raftman was the forerunner of the log driver on the Pennsylvania streams. The former ran his timbers down stream in great rafts. The log driver rode the individual logs coursing their way down the freshet-laden streams. When the log driver, who could bring down many more logs than the raftmen, arrived on the scene, there were many fights. The raftman and the log driver hated each other, but they also respected each others' prowess.

On the headwaters of the Susquehanna and its tributary streams white pines ranged from 100 to 200 feet in height, two to six feet in diameter breast high. Some few scattered sentinels, reaching larger proportions, stood in the glens amid the hardwoods and the hemlocks.

What trout fisherman is there today who would not like to see such trees and rest under their great branches for a brief spell?

Some of the white pines of those early days were cut for spars and found their way to shipyards in Philadelphia, Baltimore, Camden and even Liverpool, England. Some historians say most of the sailing vessels of that era carried masts and yardarms made only of Pennsylvania white pine. Thus American clipper ships, fastest sailing vessels ever built, were rigged out with masts and booms of Pennsylvania white pine and carried the Stars and Stripes around the Seven Seas.

A “Number 1” spar was required to be straight, sound, free of knots, 90 or more feet in length and not less than 18 inches in diameter at the top end. The butt had to be hewed all around to make it conform to the trunk of the tree in size and the bark had to be peeled off cleanly.

Lumbermen were particularly desirous of taking out the largest spars and there was great rivalry in the effort. The largest spar, records show, was cut on Sterling Run, a branch of the Sinnemahoning Creek, by John Brooks. Five teams of horses were re-



"What . . . Nagging already?"

quired to get it to the water's edge. It was 112 feet long from the butt to the first limb, 20 inches in diameter at the top, straight as an arrow. Certainly the kings of the Susquehanna's rafts were those made up of squared white pine timbers cut for the masts of sailing ships!

In the lumber camps and on the rafts whiskey was plentiful. Men used it extensively "to keep from catching a cold." Others said it aided digestion—and perhaps something was needed to aid digestion because of the food in some of the camps!

Most of the trees were felled in bitter winter cold, often when the snows were deep in the hills. The men kept at work from daylight until dark.

Rafting was not only a perilous job—as was log driving—but the men guiding the rafts or driving loose logs were always soaked to their middles from the beginning to the end of the trips down stream. Many times the rafts rode a foot deep in the water—and this was especially true when those who made up the rafts placed too many hard wood logs in them. Often log drivers were spilled from their perilous perch on moving logs into the high and icy waters.

If the supply of whiskey taken on board when the rafts were started down stream to the mills was not sufficient the raftmen could always be

sure of some liquid help along the way—and so could the log drivers. Whiskey "distributors" would load down their row boats with the stuff, hold forth in quiet eddies along the streams and row out to the rafts or the log drivers when they came along. There usually was no difficulty in disposing of these liquids. Most boatmen wore leather boots. When approaching a raft a boatman would pull a bottle of whiskey from his boot and offer drinks to the raftmen. Maybe that's another way whereby we acquired the term "bootlegger!"

But, perhaps in an honest effort to persuade raftmen from drinking, some practical lumbermen placed cows on their rafts when they were started down stream. The cows furnished milk for the members of the crew on the journey and the animals were sold at a good price when destination was reached. But there is no record that milk ever supplanted whiskey on these down-river trips!

Cursing was an art among these men—and there were plenty of opportunities to cultivate the art. Perseverance brought proficiency, but, let it be said, the cursing of the raftmen and the lumberjacks could hardly be considered profanity.

Practically all of the raftmen wore beards and mustaches. You were "not in it" with the girls unless you wore

either a beard or a mustache; otherwise you were considered a weakling and unmanly.

Their throbbing life in the high hills, in the lumber camps, on the streams and the sawmills was hard and cruel but it was also amusing and gaudy. And it was natural that around the stoves in the camp shacks or on the rafts that there would be the music of the violin or some other musical instrument, the strident voices of rough men singing unmetered but lusty songs. They had to make their own amusement. They did it to pass the time away, to cheer themselves up in doleful hours and they did middling well at it.

Some of the songs of the early lumber camps were nothing more than chants, the tune and the tempo have varied greatly because of the whims of the singers and also because most of the songs never had a written musical score.

Authors of many of the songs are not known. There were few persons in the lumber camps and along the rivers in those days who took time out long enough to jot down the verses of the songs. Many of the "pieces" have been changed to suit local conditions, many of them originating in one spot, turned up in another to be revamped as suited the fancy of the improviser or the singer. But nearly always, however, the songs contained what the woodsman wanted and if they didn't exactly suit they were made to fit a local episode or a local thought.

The wild character of these camps, the sawmill towns and the "tying up" places where the rafts stopped temporarily on their stream voyages is seen in this rugged folklore, some of which, of course, was and is so lusty that words have to be changed, frequently, before they may be sung in what we like to term polite society today or before they may be printed in books.

But with it all the woodsmen found some time—even if it was on Sunday—to pull many native trout out of virgin streams far back in the hills. Time was found, too, to do some shooting—deer, bear, grouse, squirrels, and of course, in earlier days wild pigeons which furnished food for many a camp meal. When pigeon fare began to pall, the excess birds were salted down in great hogsheads and used in winter months long after the great flights of these birds had disappeared from the local landscape.

Your woodsman was a marksman, and a patriot. Within two weeks after President Lincoln called for volunteers

300 lumberjacks came out of the McKean and Cameron County lumber camps carrying their muskets and their rifles. They converged at Driftwood where, hastily building a number of rafts, they went down stream to the head of rail navigation. They eventually reached Camp Curtin at Harrisburg where they enlisted. These

lumberjacks and woodsmen were the nucleus of what later became the Bucktail Regiment which won honor and glory on many a Civil War battlefield. Their prowess as marksmen became well known—and feared.

And the unit was the only regiment permitted to carry insignia other than army regulation designation.

These fellows, individuals that they were, boarded the rafts at Driftwood each one wearing a buck tail on his hat or cap.

They wore buck tails throughout the history of the regiment!

When the conflict was over, many of them returned to the hills of Pennsylvania and to the lumber camps.

Fish At Home

(From Page 5)

producing noxious gases and other poisons. Fishes are cold-blooded creatures, and most of them can go a week without food without showing any discomfort. Moreover, an aquarium is also the living place of numerous tiny plants and animals on which the fish may frequently be seen to feed, picking and pecking on leaves, glass and gravel. That fish gather at the place where they are habitually fed, "begging" for food, is no indication that they are really hungry. Like most domesticated animals they have learned to react to their keeper's footsteps or behavior, and will act hungry in his presence even if they have been fed but a few hours before. To prevent overfeeding, the New York Aquarium recommends that fishes be fed only three times a week and that no more be given them at any single feeding than they will completely consume within ten minutes. The correct amount of food can only be determined by feeding the fishes with the flat end of a toothpick, standing by to see that each bit is totally consumed before giving them another. After a little practice, however, such extreme care is not necessary. Some fanciers believe that keeping a few so called scavengers, like snails or catfishes, reduces the danger, but there are no "scavengers" alive that can cope with chronic overfeeding.

Plants play a vital role in home aquaria, but not the one usually assigned to them. All tradition notwithstanding, plants do not "balance" an aquarium, providing the fishes with oxygen and using up the carbon dioxide produced by the fishes. Plants do not increase the oxygen content of an aquarium to any appreciable extent, and they do not reduce the carbon dioxide content except when they are actively producing food (photosynthesizing), which takes place only in the presence of bright light. So far as respiration is concerned, fishes do as

well without plants as with them. Nevertheless, for both utilitarian and aesthetic reasons, aquatic plants should be included in the home aquarium. More than anything else they are responsible for whatever beauty the tank exhibits. Few, if any, aquaria which lack a generous growth of underwater vegetation are really attractive. On the more practical side, aquatic plants provide a more natural environment for the fish, including places to hide and to lay eggs, and they are feeding grounds where microscopic and near-microscopic plant and animal life abound. In addition, well planted tanks are less likely to develop green water.

The proper amount of vegetation for a given tank depends more on decorative effect than biological. What kind of plants will thrive depends mostly upon the quality and quantity of light they receive. It is best to experiment with several different types in order to discover just which ones will do best. Cabomba and Anacharis require strong light; Vallisneria, Sagittaria and Ceratopteris (water sprite) need somewhat less; while the Cryptocorynes thrive under relatively subdued light. In any event, if your tank depends largely upon artificial illumination, you will need to keep the light on eight or nine hours each day. Either incandescent or fluorescent lights may be used. For more natural effects with fluorescents, those known as Warm White, Warm Tint or the like are by far the most satisfactory.

Local fishes like certain darters and minnows, crappies, sunfishes, catfishes, suckers, sticklebacks, gar, mudminnow and goldfish—all of which will do well in relatively small tanks of standing water—do not require any temperature control. Nevertheless they must not be subjected to sudden changes in temperature and should not be kept in rooms where the thermometer drops more than ten degrees at night. On the other hand, the great majority of

the so-called tropical fishes require controlled heat, ranging from 72° to 80° Fahrenheit. This is most efficiently and safely accomplished with one of the better grades of electric heater-plus-thermostat available at stores or through mail order establishments.

Feeding the usual run of tropical or temperate freshwater fishes is seldom difficult, providing that overfeeding is avoided. As wide a variety of foodstuffs as possible should be used. Besides the several different kinds of commercial dried foods available, raw lean meat, liver, raw fish, shrimp and clams, yoke of hard boiled egg, cooked oatmeal, parboiled spinach and fresh lettuce are all relished by most tropicals and by many temperate water species. Usually the food is chopped up finely before being fed. A blender of some sort is wonderful for this, but the amount needed is usually so small that chopping by hand is not onerous. A little living food once a week is excellent but not absolutely essential. Live Daphnia (water fleas), Enchytraeds (white worms) and Tubifex (red worms) are generally sold in pet stores, at least during certain seasons. Raw, frozen Daphnia is a good substitute for the living creatures. Earthworms, chopped up if the fish are small, are excellent.

When purchasing fish for the first time, it is best to stick to the less expensive kinds. The hardier a fish, the more available it is likely to be and the cheaper it is. In fact, the ubiquitous guppy—a live-bearing species that is hard to beat for color, hardiness and prolificness and which exhibits lively yet peaceful behavior—is probably the best of all beginners' fish. Other hardy species include the danios, many barbs, the paradise fish and the medaka. Slightly less "tough" are the tetras, platyfishes, swordtails, mollies, corydoras catfishes, the Siamese fighting fish and the angel fish or scalare.

Next to overfeeding, overcrowding kills most pet fish, and when your fish come to the top gaping, it is

usually a sign that this serious condition exists. For goldfish, a safe rule to follow is to allow two gallons of water for each inch of fish, not including the tail fin. At least this much water, and probably more, should be allotted to local species like sunfishes or minnows. Tropicals require only about half a gallon per inch of fish.

It should be remembered that fishes collected in ponds or shallow lakes have a much better chance of surviving the transition from natural to captive conditions than do those taken from running streams or deep, cold lakes. Trout, for example, simply will not live in standing tanks unless they are refrigerated. The above figures may be somewhat conservative, but it is better to start an aquarium with a fish population that is below the maximum and to approach that figure gradually.

The capacity of a tank may be increased by circulating or aerating the water. This is generally accomplished by means of small air-pumps designed for that purpose. The beginner is well advised to stay clear of these me-

chanical devices, however. Until he gets the "feel" of a tank and its fishes, he is better off without filtration or aeration. Too often these become "crutches" that hold up aquaria which would otherwise disintegrate because of gross overcrowding, chronic over-feeding or other abuse.

Not all fishes will get along together. Many, like the sunfishes, crappies, paradise fish and Siamese fighting fish are "antisocial," especially at breeding time. In general, the guppy, platyfishes, danios, tetras, corydoras catfishes and some of the barbs are the most satisfactory species for the community tank.

The following are among the best books on the subject of keeping fishes in the home:

"Exotic Aquarium Fishes" by William T. Innes, Innes Publishing Company, Philadelphia, Pa. 507 pp., illustrated in color and black and white. (\$7.50).

"Tropical Fishes as Pets" by Christopher W. Coates (revised edition, 1950), Liveright Publishing Corporation, New York. 258 pp., illus-

trated in color and black and white. (\$3.50).

"Aquariums" by Anthony Evans, Dover Publications, New York. 128 pp., illustrated. (\$.60).

If you are somewhat more technically inclined, the article on the keeping of fishes by Dr. Myron Gordon which forms a chapter in the book, "The Care and Breeding of Laboratory Animals," (John Wiley, N. Y.) is excellent.

The two leading aquarium magazines in the United States are:

The Aquarium (Monthly) Innes Publishing company, 129 North 12th Street, Philadelphia 7, Pa. (\$2.25 per year).

The Aquarium Journal (Monthly) San Francisco Aquarium Society, California Academy of Sciences, Golden Gate Park, San Francisco 18, Calif. (\$2.25 per year).

In them will be found many helpful and suggestive articles, and they also contain the advertisements of the major dealers, breeders and manufacturers.

Lines About Lines

(From Page 11)

Of course, the ideal line is one that will cast well and float the entire day without dressing of any kind.

To be fully effective as a fly casting line, a line must have a degree of taper. The primary purpose of taper is to provide a heavy body to the line at certain points so that with its own weight and the impetus of the fly rod's action, it will carry a nearly weightless dry fly considerable distances.

Since this thicker part of the line strikes the water rather heavily and

would frighten a fish if landing near, it is necessary the end section of the line be of small diameter for a distance before it connects to the leader. Usually the leader is in turn tapered to a fine degree so the actual connection between the heaviest part of the line and the fly itself may be a tiny hair of nylon or gut of less than one pound test.

There are single tapers, standard double tapers and shooting tapers.

The single taper, and least expensive tapered line, consists of a long level section of line which begins to taper about 15 feet from its lightest end. The distance of taper is usually from 6 to 12 feet, and the line again levels off for a few feet of its smallest diameter.

A double taper, as the name implies, tapers at both ends from a level section of the line's heaviest diameter. And, of course, it provides twice the use since it may be reversed.

A shooting taper, most expensive of all fly lines, runs most of its length at a relatively light diameter. At roughly 35 feet from the business end, it usually tapers rather abruptly to the maximum diameter which may be carried 15 to 26 feet before again diminishing to a diameter which is

even less than the main body of the line.

Distance of taper varies with the manufacturer and the purpose for which the line is intended.

Although we are primarily concerned here with the tapered line, it can be mentioned all line companies carry a level fly line. The level line, because of its lower cost, is usually purchased by the angler using it for all types of fishing. Its user is definitely restricted when it comes to fly fishing, however. Because of its frequent soaking in all types of fishing, the line is not likely to float well despite repeated dressings. And, a level line that will cast a dry fly well is usually too heavy to be practical for normal bait fishing.

In this writer's opinion, there is no all purpose line that works well for all purposes.

Fly lines are graded according to weight with alphabetical designations. Sizes run from I, the smallest, to A, the largest, with .005 inches difference in each size. These sizes are governed by the American Standard of Fly Fishing Calibrations.

For instance, an I line is .020 inches in diameter, and an A line is .060 inches in diameter.

One exception to this is Miller's Hollow Fly Line. Because of its hollow construction, this line deviates from



"Look, Son—I said 'No Worms'—Use a Light Cahill."

two to three thousandths for a comparable alphabetical designation. Ash-away, for their heavy salmon tapers, designate the greater diameters by adding a figure to the letter A, (i.e.) 2A, 3A, 4A.

The ideal line is one which will cast well, needs no dressing and will not sink. There are at least two companies which claim to have produced such a line, and it is interesting to note their particular lines. Certainly the most unusual is the Miller's Hollow Line. This line is actually hollow throughout its length and is waterproofed from the inside. Made of silk, the line is kept to conventional diameters through extremely tight braiding which allows 50 stitches to the inch rather than the usual 28 or 30. Air inside the line provides the floating properties while secret finishing oils provide a waterproof finish. Lines of this make sell from \$12.50 to \$22.50.

Completely new on the fishing horizon is the Cortland "333" which was unveiled for the first time in August of last year. It is advertised as a non-sinkable fly line. And, although a price list is not available and the line has yet to meet the real test of angler acceptance, it is certain we'll be hearing more about this line. Secret of the floating properties lies in a bonded finish which is a synthetic surface coating as differentiated from oil impregnated finishes which permeate the whole line.

Construction of any good fly line is a complicated process. A typical line requires as much as 65 hours of actual work and several weeks of processing.

As the line is braided from the raw silk or nylon, tapering is accomplished by adding or reducing the number of threads feeding into the braiding machine. Tapered line braids at about five and one-half feet an hour.

At the B. F. Gladding Company, fly lines are doped with waterproofing oils from seven to a dozen times with a drying period in between dopings of from five to fifteen days. A heated tower is used to speed the drying process after each doping. The lines are also sent several times through rotary brushes and sandpaper honing machines. A baking process follows. It takes about three months to turn out a first-class line.

Selection of the proper line for your favorite piscatorial indulgence should not be taken lightly. A good line is a substantial investment for the average angler, and he wants to be certain he is getting the line he can best use. In fly casting, your fly rod is the determining factor in the choice of lines for various types of fishing: your own preference can govern your choice of brand names.

There is no hard and fast rule in fitting lines to rods. *No chart will show you the exact line you should use.* For that reason, we are not going to list one here. All of the line manufacturers have charts which suggest the best line for various weight rods. But even these charts do not always agree.

The only sure way to find the line that fits your rod is to take one of the recommended size for the weight and length rod and test it. No two rods will have identical action, and a 7½ foot, 3½ ounce rod of stiff spine will take a different line than one with a weaker spine.

Certain generalizations hold true in the choice of a line, however, and your first thought should be in connection with the type of fish and the type of fishing you are contemplating.

For normal trout fishing in Pennsylvania waters, a single or double taper is best. Even a good level line is adequate if all of your fishing will

be along small mountain streams. But, for most dry fly casting for trout, the normal taper is best. However, if you contemplate extremely long casts over big water, you may need one of the shooting tapers to carry your fly to where it will be effective.

Shooting tapers, with the most weight toward the business end of the line, are especially fine for hair frogs, popping bugs and over-size dry flies such as used for bass and large trout. The larger lures are extremely light relative to their size and offer more resistance to the air. In the case of bass, the extra disturbance the heavy taper causes is of little consequence in most instances although you will need extreme caution with large trout.

With a good tapered fly line costing from \$8.50 to \$22.50, a considerable investment for the average angler, a line deserves the best of care and attention. Follow the manufacturer's recommendations which may vary from simple cleaning and waxing to special preparations. All reliable companies stand behind their lines, and you must realize that on rare occasions you might run across a poor one much the same as in anything else you buy.

But, don't cry "gyp" if your line starts going bad prematurely until you have checked your rod guides carefully as well as the guard ring through which the line passes from your reel. These are the danger points where a tiny crack or worn edge can ruin a good line in a hurry.

Generally speaking, careful selection of a line suited to your rod and the type of fishing you plan will double your pleasure and increase your catch. Regard your line as the fine piece of fishing equipment that it is and care for it accordingly. It pays!

Almost Skunked

(From Page 19)

stream, taking cover behind boulders, I started careful casting to the fore of the stretch of water ahead—placing each succeeding cast farther up the apron of water. This procedure was followed exactly as per the laconic orders issuing from a spot about 15 feet to the rear, in a clump of bushes. The fly was allowed to sink, for a few seconds, directly upon hitting the water, and the retrieve was made in short jerks.

On one such retrieve, from the rear of the stretch, there came a walloping,

thrashing strike of golden brown, and I was on to the first fish in two days a-stream. This one was a 10-inch brown of deep girth and lovely coloring, which put on a beautiful series of long scrappy rushes, before he was netted.

Comments of satisfaction were exchanged between the rustic entomologist and myself, and back to work I went. The next stretch yielded three more brownies of about the same size in approximately 15 minutes time. Dur-

ing the following hour I missed some, lost others, and took four or five of six or seven inches, all of which were returned.

In one very beautiful stretch a 14-inch brown struck with such vicious force that he bolted up and out in a complete somersault. He shot clearly out of the water twice in rapid succession, and then dug deep upstream. Shortly after creeling this beauty, I went at it with one of 12 inches—another jumper, that ended up by getting into very fast water and leading me a merry chase.

The trout did not want minnows.

They were not after surface flies, the larva stage of nymphs didn't interest them. They passed up all wet flies, save one, which evidently closely resembled the hatching nymph on which they were feeding. I have since been asked, after relating this experience, whether or not I noticed any hatching naturals. Had this been the case, my acquaintance's theory of the hatching nymphs would have been further borne out. However, there was no large hatch, at any rate, not one large enough to catch my inexperienced eye. The experts tell me this is often the case with rising nymphs—they are not always noticed, and oftimes you have to be looking hard for them in order to see the sur-

faced fly in the act of throwing off his clinging "shuck."

John Stauffer's old warrior certainly turned the trick that day. Of no small importance also was the old man's reminder on fly presentation. In hopes that it may do likewise for you one day, following is a description for tying: Tail—cock bird tail fiber. Body—spun pink and grey wool. Throat—blue dun. Wings—sparse grey teal feathers.

When the 1951 season rolled around, I experienced a situation on the same water—about the same time of year—which provides an anti-climax to all that has been related above.

A short time before leaving I called John Stauffer and asked him to tie a

couple of duplicates of the wonder-worker. He obliged with not one or two, but five in varying sizes: the result—the trout passed them up. But I did do very well on streamers and artificial caddis larva. All of which proves again the extent to which trout can carry their habit of selective feeding.

And so it was that I learned my lesson about this phenomenon, and I must say that it was learned in a rather dramatic, "story-book" way. After all, I had the much storied, worn out, often impractical forgotten fly that saved the day, the old timer with the right answers and the fitting end to any trip, a nice catch.

What's New in Fishing Books

By HUGH JOHNSON

A VERY dangerous book has just been published—*How to Take Trout on Wet Flies and Nymphs* by Ray Ovington (Little, Brown and Co., Boston, \$4.00). It is dangerous because, if a large number of fishermen should read it, digest its contents and proceed to apply their new knowledge on the streams of the nation, the trout population would suffer a set-back of such unprecedented proportions that probably nymph fishing would be banned forever by State Conservation Departments. This reviewer has on several occasions pointed up the need for such a book in American angling literature and our only concern now, to mar our gratification over having the book at long last, is whether it isn't dangerous doctrine to spread around, especially when presented so pleasantly and convincingly as Ray Ovington presents it.

The wet fly, as differentiated from the more exact nymphal imitation, will generally perform quite satisfactorily when a hatch is not under way or when there is no indication of a hatch about to start or of a hatch just tapering off. Under these conditions, trout are not particularly choosy and are as likely to rise nicely to a cast of wet flies as they are to rise to a nymph. Here the wets are excellent fish-finders and usually good fish-takers. But, when there is any evidence on the water of a hatch—

past, present or future, the chances are that the trout are selectively feeding. Here is where the knowledgeable nymph fisherman takes the fish, while the wet fly man (and sometimes the dry fly man) frequently goes stark, raving mad with feeders all around him who ignore his fancy offerings. Ray Ovington tells why this is so and what, specifically, to do about it in the 100-page section of his book, entitled *The Sport of Nymph Fishing*.

One weakness of many anglers who try to write about wet fly and nymph fishing is their tendency to lose themselves—and baffle their readers—in a morass of technical entomological data. It would be especially easy and tempting for an author to do this who sets out to do a complete job on nymph fishing in which comparatively exact imitation of naturals is a paramount consideration. However, Ovington spares us on this, and it is to his credit that he distills from the entomological field only those facts which the fishermen need know in order to understand the why's and wherefore's of sub-surface fly fishing. Quite simply, he discusses the May fly nymph group under the main categories of burrowers, clamberers, clingers, and swimmers, takes up the caddis and the stone fly, and then examines the insects themselves and their best imitations (naming them in parlance familiar to fly fishermen and describing the materials for tying them). This treatment of specific insects and their imitations is set up by the author on a "cycle of the season" chronological basis, applying to Pennsylvania and the northeastern section of the nation, which makes very good sense.

The real "news" value of this book, that sets it apart as something needed, lies in the large section on nymph fish-

ing (which the author obviously relishes over all other forms of fishing), but there is other important information throughout the book, which is insufficiently covered in other books. For example, some of us are quite casual about the way we approach a stream and the way we wade it, even though we may be as fussy as lavender in casting and in our choice of terminal tackle. Ray Ovington discusses at some length the necessity of extraordinary care in this connection, even spelling it out to the extent of describing the kind of steps a fisherman should take in the water.

How to Take Trout on Wet Flies and Nymphs is the most complete, most articulate discussion of wet fly and nymph fishing available in American angling literature at the present time. And the book probably won't be dangerous, after all! We fishermen are victims of an occupational laziness under which we are inclined to follow our own, old ways no matter what we read about our sport. In any event, *How to Take Trout on Wet Flies and Nymphs* is good reading, and you won't catch any more trout—unless you take the book seriously!



RECIPE FOR A WORLD

TAKE one man, one woman and a garden. Add an apple and a good, fresh snake. Stir gently until the pot begins to boil, then drain off the apple and keep adding children. Simmer on a slow fire, then put on ice. Alternate between the two extremes, giving the whole a good sound basting when needed, turning slowly in a proper space. Keep adding time until the mass is of the consistency of a mud pie covered with ants. Multiply the inhabitants and garnish with villages, towns, cities and empires. Now introduce a little theology and enough Devil sauce to spice. Keep adding Battle. Murder and Sudden Death, and a good layer of Cant. Put plenty of salt in the water and sprinkle with bad society. When your world is finished, throw it in the fire and begin all over again. It's a good game to pass away the ages!

New Officers for 1953 Elected by Dover Fishing Club of Philadelphia

Newly elected officers for 1953 of the Dover Fishing Club of Philadelphia are as follows: Charles Weiss, president; Russell Walls, vice-president; William Weisbecker, treasurer; Philip Lansdale, secretary; Stanton Schafer, assistant secretary; Elliot Goldman, legal counsel and Dr. C. C. Hankinson, surgeon.

Dear Sir:

Enclosed find one dollar for 1953 subscription. THE PENNSYLVANIA ANGLER is improving with each new issue and well worth all it costs. I do not see how you could put up such a good magazine at the old price of fifty cents per year.

Being employed as instructor in the local Junior High School I have the summer months free to devote to my

Johnstown Democrat photo

COLD SOAKING RAIN didn't prevent these Johnstown, Pa., youngsters from enjoying some mighty good trout fishing last April in a "Paradise" all their own, set up by a group of civic-minded men and women of the West End Young Republicans Club of Johnstown.

The Editor's Angle

favorite pastime of fishing and spend much time on the streams in Pennsylvania and other states. In the interests of conservation I have served as special fish warden at various times in past years when I had time available, always found the majority of sportsmen very cooperative in complying with the regulations of the Fish Commission. It is the "fish hogs" and irresponsible persons who commit depredations along our streams.

CHARLES M. HASSELL
Johnstown, Pa.

Dear Editor:

Enclosed is one dollar for the renewal of my subscription to the ANGLER. Two years ago when I moved from Williamsport, Pa., I left behind some of the best fishing in the United States. Every month when I read the ANGLER, it brings back fond memories, especially interesting are the articles on streams and lakes on which I have fished.

Keep up the good work.

BOB LUETJE
Hamilton, Ohio

Editor, Pennsylvania Angler,
Sir:

This is submitted as an example of what can be done for juveniles with a little initiative on the part of organizations. The project already has paid dividends in better sportsmanship among the children and in training them in good citizenship, to say nothing of reducing delinquency. It may encourage other organizations in the state to take some action.

Sincerely,
H. HERMAN HASSELL,
Johnstown Tribune-Democrat
Staff Writer.

Johnstown (Pa.) has a fishermen's paradise exclusively for the kids of the city and surrounding area. It is one of few children's fishing projects anywhere in the country.

What's more, the youngsters are started off on the right foot in the art of angling for the wily trout. While adult fishermen are barred from fishing the stream, experienced fishermen are permitted to coach the juveniles—show them how to bait a hook, cast a fly, lure a reluctant speckled or brown beauty to strike the tempting bait, and,



finally, to bring the fish safely to the creel.

The adults also coach the youngsters on the fishing laws and teach them conservation and good sportsmanship. All this is helping to make new converts for the ancient pastime of fishing.

The children's fishing paradise was the idea of group of civic-minded young men and women known as the West End Young Republicans Club of Johnstown.

Besides their interest in government, the members wanted to do something to better their community and make life more enjoyable for the younger set. They hit upon the idea of cleaning up a neglected stream in the nearby woods and stocking it with fish.

Of course, the plan was not realized over night. In fact, it took several years of planning and persistent effort before the project was accomplished. First, the group had to sell the idea to the owners of the land through which the stream flows—a steel corporation. Once permission was secured to use the stream, it was necessary to clear out debris that obstructed the course.

Then it was found that the water was not up to standards of purity set by the Pennsylvania Fish Commission, which had been asked to supply fish for stocking the stream. This required a purification project. There were a limited number of native trout in the stream, indicating contamination was not too serious. But the state was unwilling to supply fish unless bacterial content was reduced to specifications of the commission.

With little or no money at their disposal, club members appealed to limestone producers to supply the necessary stone to line the stream bed. The appeal brought results and a supply was made available. This was late last fall. Before the task of putting the limestone into the stream could be started, winter set in. The work was held up.

However, club members had set their hearts on having the stream ready for the opening of trout season last April. With every thaw they would get out on the stream, lugging the stones in buckets and gunny sacks and putting them into the stream. The children themselves helped whenever possible.

At last the job was completed. Periodical tests were made of the water by the city chemist. Finally the bacterial count was satisfactory.



BIG HOOK, ancient symbol of angling, is shown outside a London, England tackle shop. It belongs to the old days when few people could read or write, wares were advertised by signs closely associated with the trades. Our London correspondent, R. D. Barrett-Lennard, says in those days fish were plentiful in the Port of London and fishermen set out daily from London Bridge to cast their nets with success in that part of the river Thames. Nearby Billingsgate was soon established as a world famous fish market, which it still is though fish are no longer caught there.

But it was nearing the opening of trout season—April 15. Practically all of the fish available for stocking had been allocated. Promoters of the project were in a dither. They had been promised fish. The children were all set for the opening day. Arrangements had been made to serve refreshments. Several area school boards had extended the Easter vacation period one day so the kids could go fishing. Then word arrived from Harrisburg late that afternoon 30 cans of trout would be available. Club members were notified to pick them up at Bellefonte.

That night a couple of club members drove to the hatchery. The stream was stocked in the wee hours of the morning of April 15. Everything appeared to be in readiness—and then it rained.

But it didn't deter the kids. They literally "swarmed" over the stream, some of them with umbrellas. The fish were "strange" and elusive, but some pretty nice trout were caught that day. The kids had a grand time all season, and besides they got weekly prizes for biggest fish.

Work is being continued on the stream to maintain its purity. Boy Scouts are helping to clear out under-

brush along the stream and building rustic bridges and picnic tables and benches. Additional limestone is being put into the stream and corn fertilizer is being added to build up vegetation.

Next spring fish will be supplied from both state and federal hatcheries.

Dear Sir:

Please renew my subscription to the PENNSYLVANIA ANGLER for 2 years. It's a fine magazine. I suggest you print a photo of a fly in each issue, giving the lists of all materials used in each fly and perhaps the section of the country and time of year it has proven most effective.

RICHARD W. BAIR
Hanover, Pa.

In reply to suggestion of Mr. Bair, and other similar requests, the ANGLER will include a favorite fly or two for Pennsylvania waters, commencing with the next issue. Pressing and brief comments will be included.

Dear Sir:

Have recently received my first issue of the PENNSYLVANIA ANGLER and would like to express my pleasure with the publication . . . where have I been all its life? Congratulations on your fine publication.

WALTER B. FREE, JR.
Philadelphia, Pa.

Dear Editor:

I would like to find out how to make dough for carp out of corn meal. Could you print a formula in the ANGLER? I asked a lot of fishermen along the Delaware but no one can tell me.

The ANGLER is wonderful and I could never be without it.

PASQUALE FALCO
Bethlehem, Pa.

Mr. Falco and other interested carp anglers see letter of John Majer, page 32 of January 1953 Angler for carp dough recipe.

Art Gourley, Meadville, Pa., took these magnificent walleyes in French Creek near Cambridge Springs while night fishing last October. Mr. Gourley adds that he took the fish on live minnows in extremely low water, water temperature at 39 degrees and the moon 48 hours before full. The fish were: 33 inches, weight 12 lbs. 12 ounces and 34 inches, weight 13 lbs. 11 ounces.



Dear Editor:

I enjoyed reading the article by Ben Robinson, FISH HOOKS in the December issue of the ANGLER. But, if I know my fish hooks the illustration of hooks on page 12 (top) should be Sproat and the hooks on page 13 (bottom left) should be Sneck. Am I right or have they changed the names of the hooks?

RICHARD ERICKSON
Philipsburg, Pa.

You are correct, Mr. Erickson. By some manner or means either the cut captions became reversed or the cuts were placed in the wrong position. Before we caught the error, the press had already run a substantial portion of the magazine.

In the

PENNSYLVANIA ANGLER

15 Years Ago

The annual meeting of the Pennsylvania Federation of Sportsmen's Clubs was scheduled on Lincoln's birthday, February 12 in the main Capitol building, Harrisburg.

E. A. Rice, Mt. Parnell, caught two large turtles which he cooked, prepared for a good meal. The chopped off heads were thrown into the chicken yard. Hearing a commotion among the chickens, Mr. Rice found one of the turtle heads had a full grown chicken by the beak and it was necessary for him to cut the jaws with a knife to release the chicken.

A record walleye was reported taken by Jerry Randall, Altoona which was 33 inches in length, 16 inches in girth and tipped the scales at 10 pounds 4 ounces. Fish was taken in a deep pool in Pine Creek near Jersey Shore.

Kenneth A. Reid, Connellsville, member of the Board of Commissioners was appointed executive secretary of the Izaak Walton League of America at Chicago.

At the bimonthly meeting of the Federation of Sportsmen's Clubs of Lehigh county held at the North End Rod and Gun Club, Walter D. Read-

ATTENTION SPORTSMEN'S CLUB SECRETARIES

Delay and Confusion

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—IF—

Club Secretaries will remit the proper sums based on the new (club member only) rate of ninety cents (90c) per year per subscription.

Club secretaries, please avoid necessity for the return of lesser sums submitted for Angler renewals or new subscriptions.

inger, Macungie was elected president succeeding Milton O. Knauss, Cata-sauqua. C. R. Buller, Chief Fish Culturist, Pennsylvania Fish Commission was the speaker.

According to the 1937 Financial statement published in the 1938 issue of the PENNSYLVANIA ANGLER the receipts from motor boat licenses totalled \$7,743.25. As a comparison, in 1951, the receipts totalled \$56,351.50. The rising popularity of boating as a recreation during this comparatively short period can be accurately noted.

10 Years Ago

Articles running in the February 1943 ANGLER included: The Individual Conservationist by H. B. Wagner, Jr.; Red Eye Learns a Lesson by the Old Angler; Tying Drake Flies by C. L. Peters; Fishing the Midge-Oreno by Lee H. Diehl.

Guy Reber, Auburn, R. D. caught a largemouth bass in Sweet Arrow Lake during the season just past. It was 23 inches long, weighed 6 pounds, 14 ounces.

The ANGLER of '43 stated before Christmas Santa Claus is generally pictured carrying a large bag. After Christmas, dad is left holding it.



THERE'S A
GOOD REASON
—WHY—

The
Pennsylvania Angler

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PENNSYLVANIA ANGLER

1953

FISH BEHAVIOR • TROUT STOCKING • FISHING 3000 A.D.

FAVORITE FLIES • VALUE OF FISH MARKETS • FLY TYING



PENNA. FISH COMMISSION PHOTO

SPRING and TROUT STOCKING are synonymous. All other business goes by the boards when the Pennsylvania Fish Commission truck stops at the local post office on its way to stock that local trout stream. The staccato sound of the steady pump, the sight of nets, buckets and big trout is enough to give any true angler the BIG ITCH! Of course there's no fishing for these finny gents until April 15th and as an additional MEMO . . . there is NO FISHING ALLOWED of any type from Midnight, March 14 to 5 A.M., April 15, (Except in Rivers, Lakes or Ponds, not stocked with trout).

**COMMONWEALTH OF
PENNSYLVANIA**

HON. JOHN S. FINE
GOVERNOR

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PENNSYLVANIA ANGLER

VOL. 22, No. 3

MARCH, 1953

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THE COVER . . . PRELUDE to trout season in Pennsylvania as stocking goes into high gear. Anglers, eagerly awaiting April 15 opening day, easily contract high blood pressure helping to put 'em in.

PHOTO BY GEORGE H. GORDON, OFFICIAL PHOTOGRAPHER, PENNSYLVANIA FISH COMMISSION.

BACK COVER . . . Illustrates what one old timer said . . . "Perhaps I won't get fishing this year but I sure like to get ready!"

Photo by Don Shiner

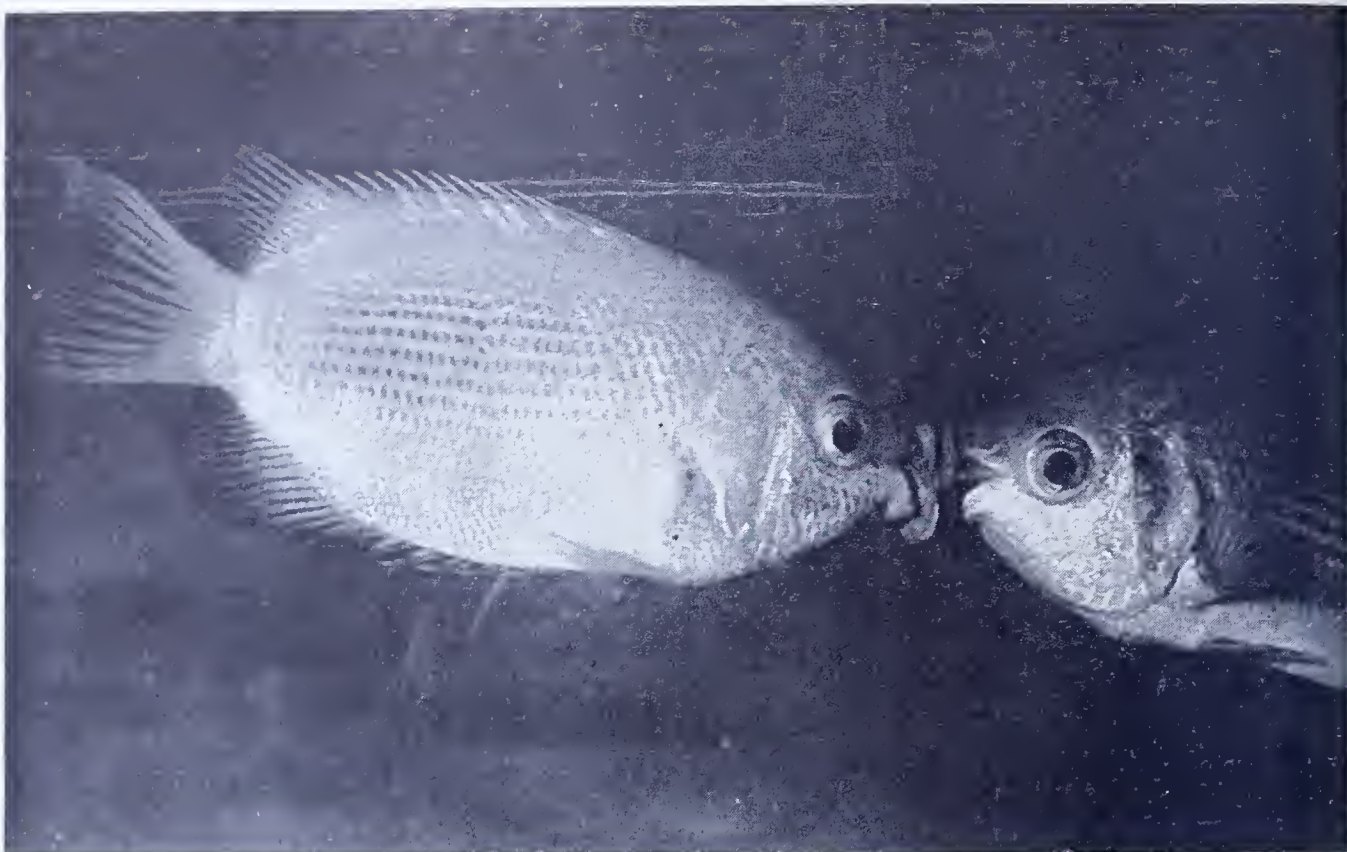


George W. Forrest, Editor

1339 East Philadelphia Street, York, Pa.

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Kissing Gouramis, not subject to Hollywood censors, linger in a "buss" that may last up to 25 minutes. But, is it a kiss of courtship aggression or oral hygiene?

Social Lives and Mysteries of Fish Behavior . . .

By Wilbert Nathan Savage

MOST Pennsylvania fishermen, and anglers the world over, usually don't give a great deal of serious thought to the more intricate aspects of motivating factors in piscine behavior when they set out on a fishing jaunt. Perhaps the closest and most common approach to studied concern is the vital: "Will they be striking today?" Or, hopefully, "Can I nail down some sort of record with a big one this trip?"

Of course you aren't being selfish when you confine your anxiety to such self-interrogation. And you aren't being shallow if you fail to attempt to reason out all the complex whims that govern a fish's reactions, decisions, inhibitions, susceptibility, unpredictable impulses, weird antics, periodic and sometimes tragic movements *en masse* in certain waters et cetera.

Even the best students and seasoned authorities in the science that deals with fishes are unable to explain why fish do certain things; we only know that they do them, and their behavior is the target of much discussion and theorizing.

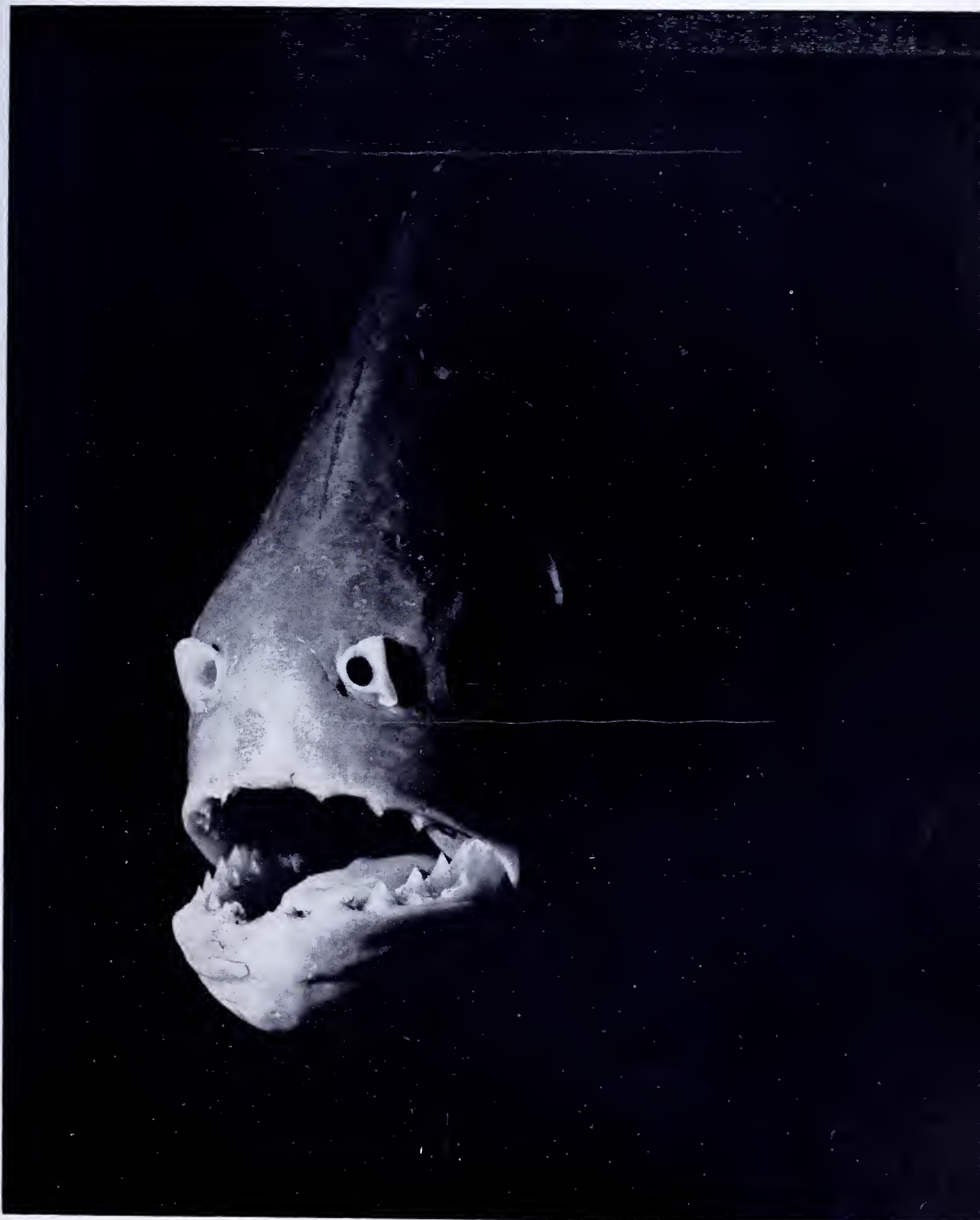
For example, the Scabbard-fish, a member of the tribe of hair-tails, follow the habit of swimming ashore in thousands on cold days. Are they in a temporary state of insanity? In New Zealand waters, where they are common, they have been studied carefully and the only logical conclusion points to the fact that the temperature of the water and the atmosphere controls their movements.

A cold influx of water has a tremendous effect on other fishes too. It apparently paralyzes the Cutlass-fish; and millions of deep-sea Tile-fish have been known to be killed by abnormally cold currents, usually following a battering storm. One of the most startling examples of this mystic form of destruction occurred in March, 1882 when dead Tile-fish suddenly covered no less than fifteen thousand square miles of the Atlantic! For years it was feared the species had been thoroughly wiped out, but gradually they restored their tragically depleted population.

Enigmatic, too, in the diversified lives of fishes is the odd fact that mackerel, herring and related fishes school continuously, except on dark nights.

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Blood-thirsty piranhas of South America are vicious killers that eat other fish including themselves, have been known to attack man and beast.



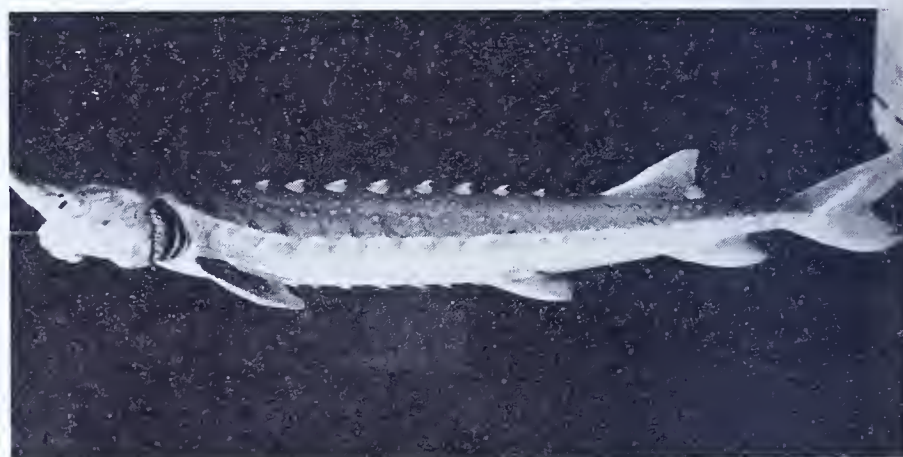


Male Brown Characin is a model father, faithful guardian over eggs and fry.

Tarpon female can deposit up to 10,000,000 eggs in a spawning period.



Sturgeon carries tough suit of armor one of many fish with guarded spawning habits.



Certainly a real behavior puzzle is exemplified in the bold conduct of the Kissing Gouramis. They may coyly pretend not to be interested in each other; then suddenly a pair ardently engage in a "kiss" that lasts up to 25 minutes. Some observers say the act is genuine courtship; others declare it is intended only as a periodic method of mouthcleaning; and still others believe it may be out-and-out aggression. Which? No one knows. Courtship rates highest as favored probability.

Yellow Grunts put on an act comically like that of the Kissing Gouramis, except that the Grunts merely touch their lips together briefly, then back away. The operation may be repeated many times, and frequently the finny creatures go at each other fiercely, then slow to a gentle pace as they touch. Inside, their mouth is bright vermillion in color. Their actions are simple, but as of now man has not been able to trace a positive cause-graph applicable to either the Gouramis or the Grunt.

In the fish world there are tyrants, bullies, murderers, cannibals, victims of timidity, demonstrators of tolerance, and on. The blood-thirsty piranhas of South America, for instance, are so savage that when confined to aquariums they must be kept completely alone, even separated from their own kind, both sexes. In the wild, piranhas frequently show marks of the gusto of attack by members of their own clan—clipped tails, the absence of semi-circular pieces of fin, etc. Here is a fish that is literally its own worst enemy!

Fish fights between individuals fairly well matched usually do not last long; one of the combatants soon turns tail and flees. A few fish, however, will stand their ground and "slug it out" for hours until exhaustion or injuries writes finis to the encounter. Two such species have been utilized by man for his amusement. The famous Siamese fighting fish or Betta has been employed in sporting contests for several centuries and has been selectively bred to bring out the fiercest fighting qualities by the Siamese for the past hundred years.

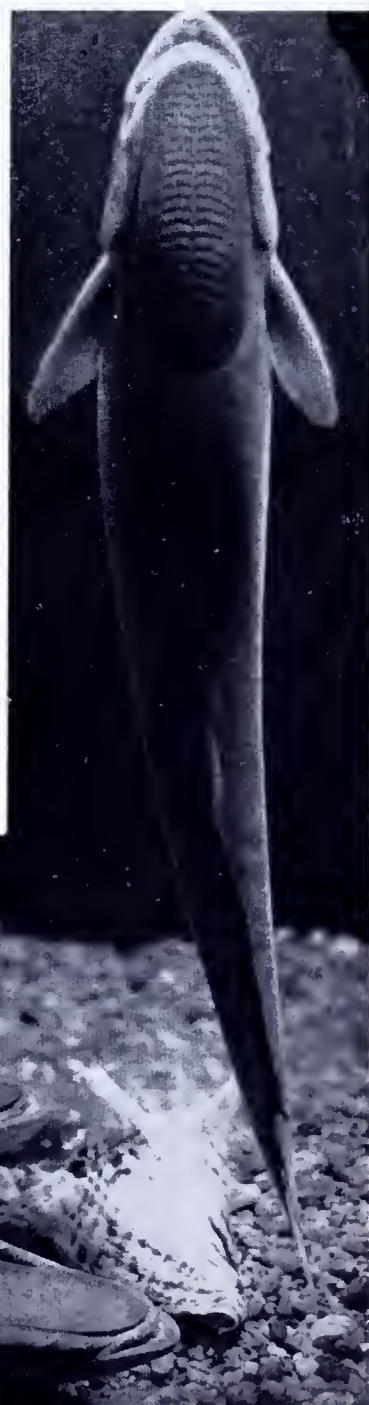
Less well-known as a challenging aquatic gladiator is the tiny freshwater halfbeak. It is also specially bred in Thailand for public exhibitions. The pugnacious Bettas fight by biting and ripping away each other's fins, tails, and scales, while half-beaks battle by grasping each other with their sword-like jaws, wrestling back and forth in a game of endurance, breaking

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Zebra fish is social outcast in fish's world of dainty eaters. This creature will gorge itself until it perishes from indigestion. Spines are poisonous.

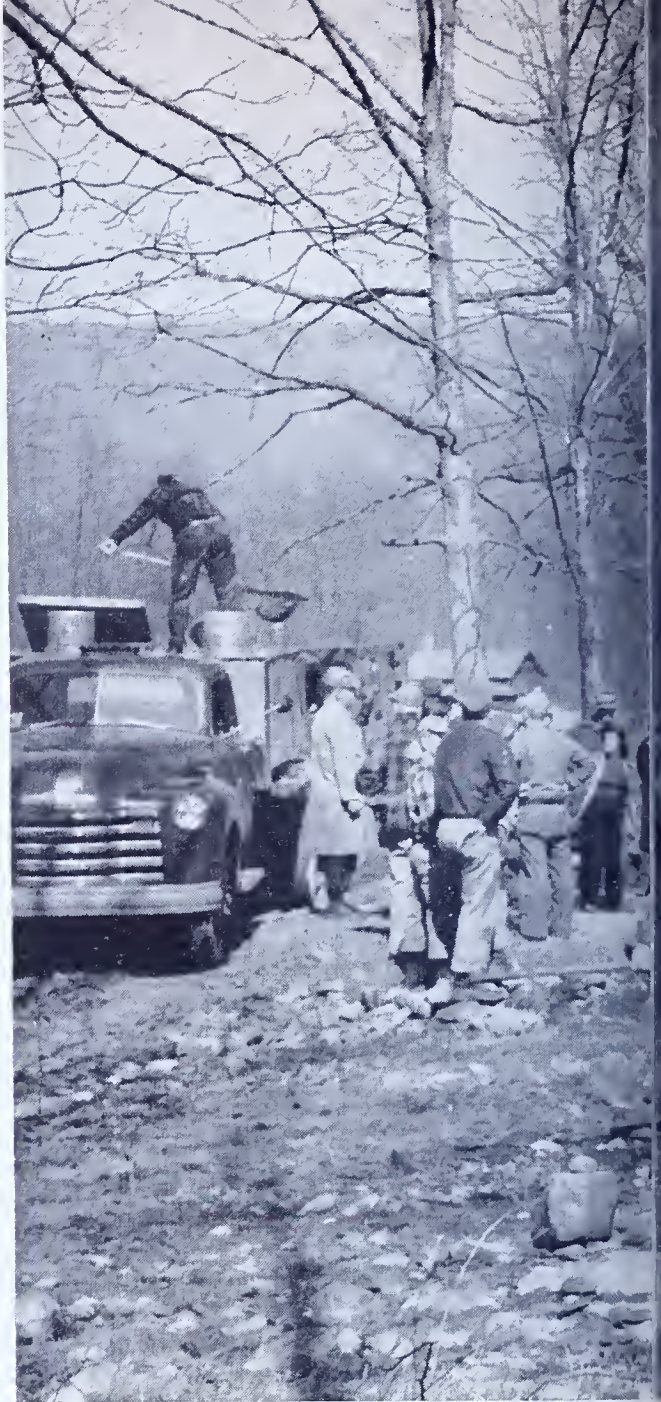
Remora or Shark Sucker is famed hitch hiker. Columbus recorded fishing with harnessed remoras which seek out other fish, attach themselves and both fish and remora yanked in by native fishermen.



Eyes pop when 20-inch Brown comes up in the net.



Pa. Fish Commission photo by George H. Gordon



Combining work and fun these volunteers eagerly look forward to spring trout stocking.

**"PUTTING 'EM IN" is both work
and sport as spring trout stocking
gets underway in Pennsylvania.**



No one minds the cold when "beauts" like these slide into the stream.



Pa. Fish Commission photo by George H. Gordon

By KEITH C. SCHUYLER

EVERY angler is familiar with the sport of taking fish out of the water. Not enough have learned to enjoy the sport of placing fish into the water.

Nevertheless, there are hundreds of sportsmen who each year earn the gratitude of both the Pennsylvania Fish Commission and the vast army of anglers who inhabit this state through their efforts in stocking trout. This effort is certainly recognized and appreciated by the Commission, but far too few run-of-the-mill fishermen are aware of the efforts made in their behalf by fellow fishermen.

This is written with the intent of providing a new awareness of a sport that is many years old and to pay proper tribute to the unpaid assistants who help with the spring "planting" of fish.

Today we must accept the fact that there is an insufficient number of good trout streams available to maintain a natural supply of fish to meet the demands of today's sportsmen. It is necessary to actually stock more fish in some streams than those streams could normally support. This is done in the knowledge that fishermen will soon reduce the trout

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Fish Commission photo by George H. Gordon

▲ Going sometimes gets rough and chain gang hands net full of wriggling trout down over rocky ledges into stream.

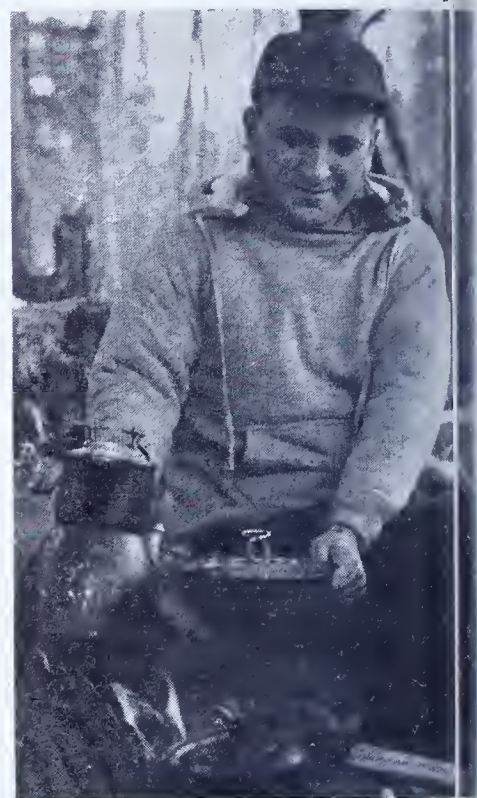


Fish Commission photo by George H. Gordon

New home for a fine lot of trout which seek their own feeding spots, later defy anglers to come and get 'em.

▼ Some fellows bring their lunch, cook it outdoors, stocig sometimes all day session.

Don Shiner photo



▼ Not even muddy roads deter stocking artists using a jeep to negotiate ruts, slippery back roads in the early spring.

J. David Allen photo



PUTTIN' IN TROUT

It will not be long 'til they're puttin' in trout
And the days will lengthen and grow,
With a warmin' sun causin' the willows
to sprout
Along the stream where you're longin'
to go.
It will not be long 'fore they're puttin'
in trout
In the pools where you're longin' to fish.
It will not be long for the hookin' 'em out
The gift of your fondest wish.

It will not be long 'til you'll be again
Fondlin' the reel and the flies,
With a sort of a grin akin to a smile
At the thought of some stories or lies.
It will not be long 'til the hankerin' lure
Will bring out the old duds and the hat.
'Twill not be long when you're there for
sure
On the stream—your favorite habitat.

It will not be long 'til you're fishin' once
more
In the stream that rushes in a song.
It will not be long 'til Spring opens the
door
To the haven where fishermen belong.
It will not be long 'til the beauties will
bite—
The beauties as long as your arm.
It will not be long 'til your line is tight
And you thrill with delightful alarm.

It will not be long 'til they're puttin' in
trout
With a beauty that's only a part.
Brookies and brownies like you've dreamed
about—
The kind that is good for the heart.
It will not be long 'til the warmth of
Spring
Will reward the dreamer his dream.
It will not be long 'til the line will sing
In the waters of the boiling stream.

It will not be long 'til the robin's note
Will blend to the blue bird's song.
It will not be long 'til the white clouds
float
And your soul is carried along.
It will not be long 'til the soft Spring
breeze
Will kiss the Winter good-bye.
It will not be long 'til the busy bees
Will take to their wings and fly.

It will not be long 'til they're puttin' in
trout
That will strum the strings of your
heart.
It will not be long 'til you're fishin' 'em
out,
When the season of seasons will start.
It will not be long 'til your soul will sing
And you'll live again like a boy.
It'll not be long 'til you feel young again
In a heart that's a bubblin' with joy.

It will not be long 'til they're puttin' in
trout
And the days will lengthen and grow,
With a warmin' sun causin' the willows
to sprout
Along the stream where you're longin'
to go.

THE MAJOR.

➤ This gang after stocking Chapman Lake stopped off at local drug store that furnished free coffee and doughnuts. Paul Bittenbender, Vice Pres., Penna. Fish Commission on left in jacket vest takes doughnut from Gene Calibani.

Ed Palski photo



Ed Palski photo

▲ Four trucks stock Chapman Lake but 1000 sportsmen are on hand to watch 'em hit the water.

▼ Lake Chapman stocking, with Bennie Lucas on left picking up flopping trout. On right is Jame Brodski, Dickson City helping hold big rainbow with unidentified sportsman.

Ed Palski photo



Fishing - 3000 A. D.

By BILL WOLF

Few will believe this fantastic tale of angling in a setting more than 1000 years hence. Yet, it's intriguing to read what the writer, delving into the realm of fantasy, has in mind for anglers living in the age of space ships.

FOR the first time in years, Wlm looked forward to a fishing trip. It wasn't only because he would enjoy showing off the earth's few remaining good fresh water angling spots to his country cousin from Venus who was aboard the giant spaceship now making vast circles around the spaceport to decelerate. That would be fun, too, since his visitor would find everything new on his first space voyage to earth. Angling wasn't much of a recreation on Venus. Wlm shuttled delicately at his memory of the one trip he had made to the sister planet expressly to try its fishing. A world of swirling green mist through which the sun broke as a yellowish haze only on the highest

mountain peaks. A world of broad, slow rivers and "fish" that were more saurian than piscatorial, horrible to look at and horrible to catch as the earth pioneers on Venus caught them—with a gun-fired metal lasso from a submarine.

The spaceship was landing now, a safe mile away from where Wlm and other greeters awaited its interplanetary visitors. It settled lightly on the solid rock landing strip, which its descent jets turned nearly red hot with their checking blasts. Spaceport cars, impervious to heat, raced out over the smoking plain to run up a lowered ramp and into the ship. Soon they would return, bringing the passengers

to the station. No, Wlm thought, his cousin would find fishing different here on earth; but that wasn't the only thing that almost made him purr as he walked up and down impatiently. It was taking an infernally long time to get the passengers off. Wlm adjusted his spectacles to telescopic, and peered at the closeup of the spaceship. No signs of the spaceport cars leaving yet. He shook his head over the delay, but his smile belied his lack of patience. He was only anxious to get going on the morrow. He was still purring.

Twenty-five years of research had finally paid off, and Wlm had learned the fishing secret of the primitives. Twenty-five years of ceaseless hunting

for the knowledge ever since that day he had come across the clue. Let's see—Wlm stared across the still-smouldering landing field—that must have been 2975, A. D. And now, on the 212th 3000, tomorrow, he would try the ancient fishing knowledge that promised so much. The time was just right, the 212th day of 3000 A. D. falling in the middle of what used to be called the month of July, a warm month, a fish month. Good thing they did away with months and weekday names, Wlm thought approvingly. Giving each day its exact number in the year was precise, scientific, as became a scientific world.

He looked again at the spacegram his cousin had sent from Venus: **ARRIVE SPACESHIP ASTRA ON MARS-VENUS-EARTH RUN 211th 3000. READY TO TAKE THAT FISHING TRIP YOU PROMISED NEXT DAY—CHARLES' SON.** He returned it to the pouch at his waist with a faint grin. They *were* farmers on Venus, still sticking to vowels in the spelling of proper names, whereas earth had given them up long ago in the process of refining the written language. "Charles' Son" would be "Chrln" here, just as his own "William" was "Wlm."

His Uncle Chrln's boy was little more than a baby when Wlm had fished the waters of Venus, and Wlm had promised to take him fishing on earth if he ever visited the mother planet. That had been thirty years ago, Wlm reflected. Well, he was here now, and Wlm would show him something no other angler on earth, or any of the other planets, had ever seen.

He joined the rush forward as the spaceport cars returned to discharge the Astra's passengers. Tomorrow would be the day! That must be Chrln there. He shouted—

That night, Wlm was afraid he turned himself into a pedantic bore, but there was so much Chrln wanted to know about angling. And there was so much that Wlm knew, so much knowledge that he had gathered in sixty years of intense living that had left little mark on his long, angular body and equally long face. There were a few wrinkles about the eyes, perhaps, but they were obscured by the glasses that most men had to wear in the year 3000 as the human eye progressively became more myopic. Normally, a reticent man, Wlm didn't mind talking this night because Chrln—big, rugged and vital despite his life on a spore farm on steamy Venus—was so eager to learn, and so inter-

ested in everything pertaining to his mother earth.

"Start from the beginning," Chrln had insisted as they sat in the sky room of Wlm's home with the star-pierced blackness of a Colorado night all about them outside the plastic dome. "Our televiz schools on Venus have short courses on earth history, of course, but I never had time to go into it deeply. We are still so busy pioneering on Venus even after half a century of earth settlement," he added apologetically, "that I was too busy to study more."

From the beginning, Wlm mused silently for a moment. That would be about the middle of the Twentieth century when the beginning of the Thermowave was first noted with certainty. "Our knowledge of the past is so imperfect," he said, more to himself than to Chrln, "because the disastrous wars that followed the shrinking of the land masses destroyed most of mankind's records. The scientists saved what they thought was important, but the human things, the history and literature of the past, went by the boards." He laughed wryly. "We salvaged formulae out of chaos, and forgot the story of Man."

He shrugged, "Oh, well, as you know, sometime in the Nineteen-Fifties the Thermowave made itself really felt. The slow retreat of the polar caps had been noted half a century before that, but something happened to speed up the process. The great glaciers started to melt, the arctic and antarctic ice fields began to break up and turn into water in the series of mild winters and hot summers that followed. Even the 'perpetual' snows on the great mountain chains melted, creating havoc in the valleys below. Those were unhappy days for mankind, with the greatest floods in recorded history, but it was only the beginning. Almost the beginning of the end, but we survived as a race." Wlm permitted himself a smile.

"The levels of the oceans started to rise, not gradually, but suddenly. Even a mean rise of ten feet would have meant disaster for millions, but the level kept climbing, twenty feet, thirty feet, and hell came to earth. Unfortunately, man had built many of his most important cities near or on sea level. Most of his fertile soil was in the lowland, the river valleys. The seas took back what man had gained. Oh, it didn't take place in days, naturally; but over the years. Nevertheless, it was suddenly so far as man was concerned.

The Netherlands disappeared, and that did occur in a few days, and hundreds of thousands drowned. England?" Wlm almost snorted. "England once had a proud boast 'There'll always be an England.' Well, there still is, Chrln, a few hilltop peaks sticking above the sea. You see, it wasn't only the rising sea level that hurt, there also was a subsidence of the land in many places from the terrific weight of the water added to the land surface. Old earth faults that never were serious before buckled under the added weight and the land sank. That happened along what we used to call the 'Atlantic coast.'

"There used to be a city which we now remember as N'rk, but which once was called 'New York.'" He pronounced it carefully. "I understand it was the metropolis of the ancient world. We still send down diving bells to recover antiquities of the past from its underwater ruins. It had buildings high enough to protrude above sea level, but you understand, Chrln, that a mean rise of thirty or fifty feet in an ocean level wasn't a fixed measure of the seas' increase. Terrific tides, greater than ever known before probably because there was more water surface for the moon to affect, surged far inland, and storms piled up giant waves. Sometimes, when a land area collapsed suddenly, mountainous tidal waves swept everything before them, and man perished miserably by the millions. N'rk's big buildings were simply bashed down."

Each man took a thin wafer from a tray and placed it on his tongue. "These are an example of what happened," Wlm indicated the wafer tray. "Men used to smoke a weed called tobacco, and drink a stimulant made from grain when enjoying a sociable evening as we are. There is no more land that can be wasted growing such things, so we have these chemical stimulant-depressants which we call Neurenes. The ocean took over so much of the land. The Mississippi Valley became a great inland sea. The land barrier between the sunken areas of California was broken down, and the ocean rushed in. Something else happened along the whole Pacific coast. Water seeped down to the internal fires of the earth, creating steam which exploded furiously.

"Today, we have left the land areas you know from your geography—the highlands in the east once called the Appalachian mountain chain, a few

(Turn to Page 25)



Life With A Fly Tyer

Illustrated by Cypher

This is Living?

By June L. Dalton

It's most refreshing to get a woman's angle on this fishing commotion. We believe Miss Dalton expresses pretty well the opinions of many members of her sex forced to put up with a rabid angler at home.

SOMEHOW we've always felt a little sorry for the poor innocents who have written about life with father for, although they are unaware of it, they haven't really lived a full and merry life until they've lived with a fly tyer.

Now, take our Father for instance, he was just as normal as John Doe until he began reading all those looney books on fly tying and then before we realized what had happened he had gone just plain daffy! Almost overnight we changed from the humdrum life and began to live dangerously, that is dangerously close to losing our sanity and all because Father had taken up fly tying. The transformation came about so suddenly it is difficult to say when it began—we were startled one day to find that we were living in a world of Blue Duns, Pink Ladies and Yellow Tigers which isn't too far removed from pink elephants. We noticed we were eating chicken most of the time and not just on Sundays and then discovered it was because the head of the household needed feathers and, whether you know it or not, in this business feathers mean chicken.

Fortunately we live outside the city and have no near neighbors, otherwise we would have been put away long before this. For instance, imagine what the neighbors would think if they looked into our kitchen and saw Father floating a tiny fly around in a big pan of water or strolling through the house with a live rooster under his arm. Another time they might catch him

wearing an apron busily dunking tails or feathers in a pan of dye or holding some minute fly over the spout of a singing tea kettle. Another constant source of embarrassment to us is the washing he puts out. He stretches a clothes line in the yard in full view of the road and then proceeds to hang an odd assortment of skins and tails from it but, at least so far, we have been spared the agony of having him write a testimonial for soap powders.

Then too, we live in constant fear of the F. B. I. As we understand it, one is not permitted to take liberties with Uncle Sam and his mail but so far we have and gotten away with it. It so happens a lot of people encourage Father in his hobby and they have taken to leaving their gifts (without the required postage) in our mail box which we understand is a Federal offense. Experience has taught us to cautiously run our hand into the box for it is like reaching into a grab bag and we never know whether we will come up with the mail, a calf tail, a dead bird, a skunk or some other fur-bearing creature. We have often wondered if some of these kind people might not be using our postbox as a mausoleum for wild life.

We had a mighty narrow escape in Erie one day when we just missed the man in the white coat by seconds and, of course, it all happened because Father had the bug. He had read somewhere that to get just the right color of feathers a tier must use oil paints and dye the hackles. We were delegated to shop for the oils and instructed in great detail as to just what colors to choose. We dutifully went to the art store with our list and with much care made our selection. After we had completed our purchases and were about to depart the clerk, suddenly mindful of her selling technique, inquired if she might show other artists' supplies. Not thinking of the shock the poor soul would receive, we blithely thanked her and informed her that we were not artists, we merely wanted the paints to dye feathers. The stricken look on her face was enough for us and we dashed out the door before she could summon the police or the man with the wagon.

And speaking of books, did you ever leaf through the pages of any books on fly tying? Well, we did and we found out plenty! They are not as innocent as their jackets would make them appear and although we never knew before where fishermen learned to lie, we don't have to guess now.



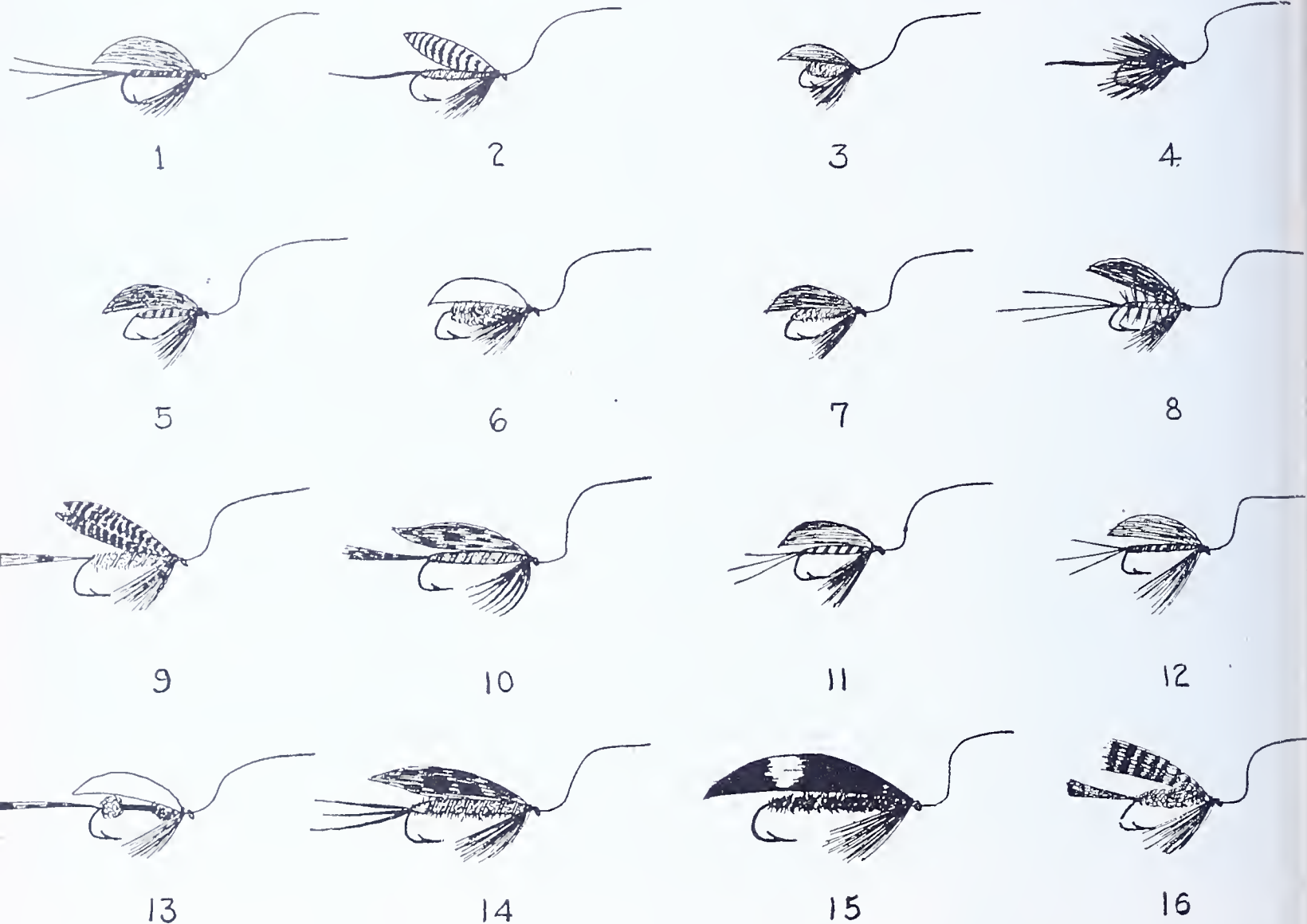
Shopping is another problem for whenever we plan a day in the city Father comes up with his list which usually includes thread, yarn, chenille, etc. He always wants them in some outlandish color which is difficult to get and takes most of the day to find. By that time we are so done in we decide to give up the ghost and go home. But when it comes to getting calf tails, peacock herl, porcupine quills and similar things it is thumbs down so then he sits down in a big easy chair and shops through the supply house catalogues. About three days after the order has gone out he begins to get anxious to receive his package and we find him daily at the mailbox waiting for the postman like a kid waiting for Santa.

Father has a room for his tying which we call "The Untouchable." We seldom cross the threshold unless by invitation and if we do get asked in we never tarry long after getting one look at the confusion in it. It contains a chest of drawers filled with supplies and in addition to that he has feathers and tails draped everywhere, his fishing boots, rods and line dryer are in one corner, a calendar, depicting a fat tycoon of finance proudly measuring a six inch trout, adorns one wall, and a shelf which runs the whole width of the room, is heaped high with gaily decorated boxes which advertise everything from exotic perfumes to Paris

(Turn to Page 27)



Some Old Favorite Wets



No. 1 Red Quill

The Red Quill is patterned after *Iron pleuralis*, one of the earliest mayflies to appear over the water. It is a typical cold water insect and is in season from the middle of April until the first week of May, but may sometimes be noticed a little later depending on the weather.

Body, peacock quill; hackle, dark red brown; tail, dark brown feather fibres; wings, leading.

No. 2 Iron Pleuralis

This old favorite was named after Professor John Wilson, better known among the old time anglers as "The Iron Pleuralis".

Body, yellow floss silk, ribbed with gold tinsel; hackle, red brown; tail, scarlet fibres; wings, mottled in lead.

No. 3 Red Legged Midge

This fly is patterned after *Ephemerella rufipes*, an insect that appears slowly moving streams, around the latter part of April.

Body, peacock herl; hackle, red furnace, or cochybondlu, wings, coot.

No. 4 Grey Hackle

This fly is a favorite with many anglers, especially the Grey Hackle with yellow body.

Body, yellow wood ribbed with gold tinsel; hackle, grey or grizzly; tail, scarlet fibres.

No. 5 Greenwells Glory

This fly was named after Canon William Greenwell, and is known the world over as a most successful fly.

Body, olive brown floss silk, ribbed with gold wire; hackle, furnace; wings, dark starling or blackbird.

No. 6 Coachman

This fly was named many years ago in honor of Tom Bosworth, royal coachman for Her Majesty, Queen Victoria.

Body, peacock herl; hackle, red brown; wings, white duck.

No. 7 Alder

The alder fly *Sialis infumata* is over the water around the first week of May and its imitation is probably most successful when used as a wet fly.

Body, peacock herl; hackle, black; wings, blackish brown turkey tail feathers.

No. 8 Wickhams Fancy

This fly was named after Dr. C. T. Wickham, an old English angler.

Body, gold tinsel, palmer tied with red brown hackle and ribbed with gold wire; hackle, red brown; tail red brown hackle fibres; wings, dark starling.

No. 9 Teal and Orange

This is a very successful pattern and no fly book is complete without it.

Body, orange wool, ribbed with gold wire; hackle, red brown; tail, golden pheasant fibres; wings, teal.

PENNSYLVANIA ANGLER

and Dry Fly Patterns

No. 10 March Brown

On our streams we have several mayflies which in the sub-imago stage simulate the March Brown. These are *Siphonurus alternatus* and *Stenonema vicarium*, the latter fly being quite common on the Penns Creek around the middle of May. I believe that there are at least fifty dressings for this fly, no two of which are alike.

Body, chocolate brown floss silk ribbed with yellow thread; hackle, brown partridge; tail, brown mallard fibres; wings, hen pheasant.

No. 11 Pink Lady

This fly is credited to George M. L. LaBranche, who discovered it quite by accident when fishing with a King of the Waters, color of which had faded to a pink shade. That it is a successful fly, no one will deny, but its success no doubt hinges on the fact that it bears an extraordinary resemblance to certain sub-imagoes of the *Stenonema interpunctatum* group of mayflies.

Body, pink floss silk; hackle, ginger; tail, ginger hackle fibres; wings, starling.

No. 12 Ginger Quill

This is a most successful fly on our waters and is a favorite with many anglers. Its origin is clothed in mystery, but it bears such a striking resemblance to *Stenonema fuscum* in the imago stage that one wonders how it could have been patterned after any other mayfly. The dun or sub-imago has mottled wings which are best represented, by a speckled mandarin feather. Otherwise the dressing is the same as that given be-

low for the spinner.

Body, peacock quill; hackle, ginger; tail, ginger hackle fibres; wings, starling.

No. 13 Royal Coachman

This fly was first made in 1878 by John Haily, a New York fly tyer. It is now so well known that everyone is familiar with its dressing.

Body, peacock herl, with a scarlet floss silk band in the center; hackle, red brown; tail, golden pheasant fibres; wings, white duck.

No. 14 Stone Fly

This fly is patterned after *Perla capitata*, a stone fly that is commonly found on the majority of our Pennsylvania streams.

Body, dubbing made from hares ear, mixed with yellow worsted and tipped with yellow; hackle, ginger; tail, brown mottled partridge fibres; wings, hen pheasant.

No. 15 Fish Fly

The prototype of this fly is *Chauliodes serricornis*. During the latter part of May it may be seen in the bright sunshine, flying sluggishly among the willows bordering the stream.

Body, a dubbing of black and brown wool, ribbed with yellow silk; hackle, dun; wings, grey mottled turkey.

No. 16 Cahill

Other than being named after a Dublin fly tyer, little is known concerning the origin of this fly.

Body, dubbing of blue rabbit fur; hackle, red brown; tail, mandarin fibres; wings, mandarin.

Drys by C. L. Peters

No. 1 March Brown

Body, Fawn colored fox fur; Hackle, brown with gray tied in at front; Tail, brown hackle tips; wings, gray Mallard breast feathers.

No. 2 Hendrickson

Body, Fur from the belly of a red fox; hackle, rusty dun; tail, Mandarin; wings, Mandarin.

No. 3 Quill Gordon

Body, Quill stripped from a peacock eye feather and ribbed with gold wire; hackle, blue dun; tail, blue dun; wings, Mandarin.

No. 4 Light Cahill

Body, red fox belly fur; hackle, ginger; tail, ginger; wings, Mandarin.

No. 5 Green Drake

Body, cream; hackle, barred rock dyed a pale yellow; tail, two or three strands from a ringneck pheasant tail feather; wings, gray drake breast feathers dyed a pale greenish yellow.

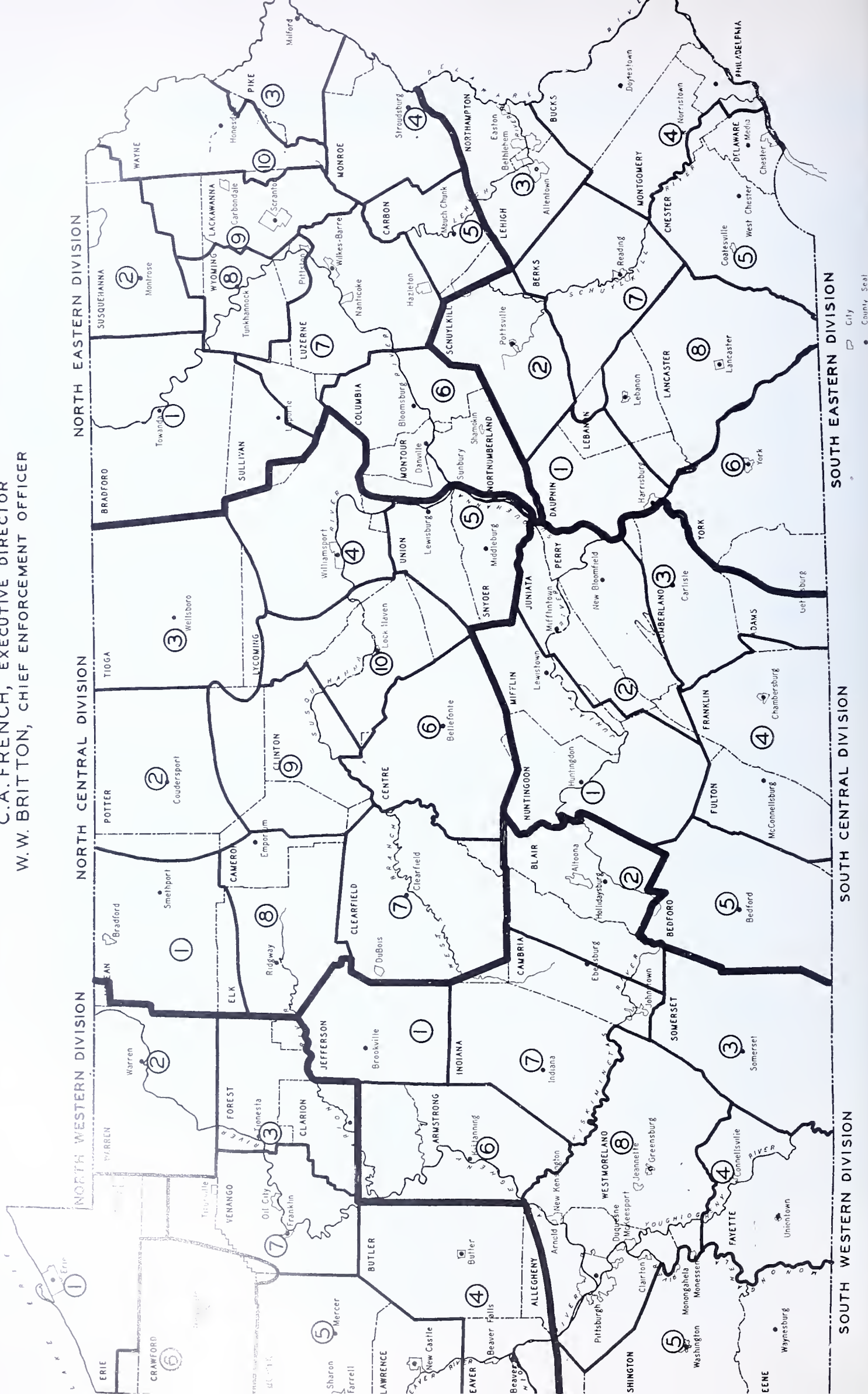
No. 6 Red Quill (Female Hendrickson)

Body, red quill stripped from a red hackle; hackle, rusty dun; tail, rusty dun; wings, Mandarin.



DISTRICTS ASSIGNED REGULAR OFFICERS

C.A. FRENCH, EXECUTIVE DIRECTOR
W.W. BRITTON, CHIEF ENFORCEMENT OFFICER



Reassignment of Pennsylvania Fish Wardens

The Pennsylvania Fish Commission announces the abolition of the old policy of assigning fish wardens by counties. After many months of careful study the Commission has established watershed or stream districts to replace the antiquated and expensive county system. Under the new plan which became effective February 1, 1953, a warden's district may now include entire counties and parts of other adjacent counties as the district may indicate.

The Commission points out that many miles of travel will be eliminated, miles of travel by a warden who under the old system was required to drive clear across his county and in some instances across two counties for the purpose of stream patrol. Under the new plan this work will be performed by the warden living closest to the stream.

In addition to the travel economy, the field force of State Fish Wardens will be better able to render valuable assistance to the Commission's Stream Management Program, provide better protection and more efficient field service.

In order to simplify and present a better understanding of the operation of the new system to the fishermen of the Commonwealth, the Commission states that contact with Fish Wardens and cooperating agencies will be far easier than heretofore. Should anyone desire to report a violation or any other act pertinent to the management of public fishing in the state, all that is necessary under the new plan is to call the fish warden nearest to him and make the report. Published elsewhere on this page are the names and addresses and telephone numbers of all the wardens so that it can be readily associated with the area map appearing on the opposite page. When a report or other form of information is transmitted to any one of the wardens he will make a record of the contact and immediately channel it through the division to the warden having charge of the area wherein which such offense or act is committed. In this way the Commission feels that no further action is required of the informant since the moment it is reported it becomes a matter of active record by the field force

which gives it immediate attention.

The field force of wardens have been thoroughly briefed and refreshed on their new districts and duties so that the fishermen either singularly or by organized groups can feel more assured that their desires and recommendations will be received and dispatched with speed.

By directive from the Bureau of Enforcement, the wardens have all been instructed to make and maintain constant contact with all sportsmen's organizations within their district and to make every effort to further familiarize themselves and their deputies with the public generally in their district.

On the adjoining page we have reproduced a map of Pennsylvania outlining in heavy black score the six (6) districts into which the state has been divided for the purpose of fish law enforcement force. In each district the wardens are indicated by a circled number a legend for which is to be found at the bottom of this page. For instance: if the violation of a fish law is observed say, near McConnellsburg in Fulton County, the call should be made to warden No. 4 in the South Central Division. Warden No. 4 in the South Central Division would be Bryce Carnell, R. D. No. 1, St. Thomas, Pa., whose telephone is No. 1. He would be the nearest warden and once he receives the complaint the wheels of the Bureau begin to turn and the warden closest to the point of the violation would be dispatched with full authority to handle it. This of course would be the same anywhere throughout the state.

This page together with the map will be reproduced and placed in circulation through the offices of the respective division supervisors and regular fish wardens. Copies will be mailed to all organized sportsmen's groups, The Federation of Sportsmen's Clubs (mother organization), newspapers, radio stations and any and all other medias through which the public can be fully and completely informed.

On the outside fringe of the map is designated the respective districts.

KEY TO DISTRICT MAP

NORTH CENTRAL DIVISION

- C. A. Bidelspacher, Supervisor
767 W. 4th St.,
Williamsport, Pa. Phone 24561
1. Wilbur Williams, Box 524,
Mt. Jewett, Pa. Phone 5751
 2. Kenneth Aley, 114 E. 2nd St.,
Coudersport, Pa. Phone 602-J
 3. L. E. Cloos
Middlebury Center, Pa. Phone 16R31
 4. Raymond Schroll, Jr.,
1567 W. Southern Ave.,
So. Williamsport, Pa. Phone 31065
 5. Kenneth Corey, Hummels Wharf, Pa.
Phone, Selinsgrove 5031
 6. David Dahlgren, Main St.,
Pleasant Gap, Pa. Phone 645
 7. Lester C. Ogden, 502 Park St.,
Clearfield, Pa. Phone 59392
 8. Clair Fleeger, R. D. No. 2,
St. Marys, Pa. Phone 7791
 9. George W. Cross, Hammersley Fork, Pa.
Phone, Renovo 2442
 10. L. E. Close, 505 W. Main St.,
Lock Haven, Pa. Phone 3731

SOUTH CENTRAL DIVISION

- Harold Corbin, Supervisor, 521 13th St.,
Huntingdon, Pa. Phone 1202
1. Supervisor
 2. C. V. Long
East Waterford, Pa. Phone 15
 3. Barry A. Gracey, Boiling Springs, Pa.
Phone, Carlisle 2735R11
 4. Bryce Carnell, R. D. No. 1,
St. Thomas, Pa. Phone 1
 5. Wm. E. McIlroy, 203 W. Barclay St.,
Bedford, Pa. Phone 471

NORTH WEST DIVISION

- Carlyle Sheldon, Supervisor
Conneautville, Pa. Phone 3033
1. Bert Euliano, 3437 Peach St.,
Erie, Pa. Phone 42251
 2. Robert M. Betts, Box 691,
Warren, Pa. Phone 1106-J
 3. Norman L. Blum
Tionesta, Pa. Phone 101
 4. Clifton Iman, 115 Wahl St.,
Evans City, Pa. Phone 3374
 5. J. R. Abplanalp, R. D. No. 4,
Mercer, Pa. Phone, Fredonia 3327
 6. Supervisor
 7. Harold Solomon, 1422 Liberty St.,
Franklin, Pa. Phone 1749

SOUTH WEST DIVISION

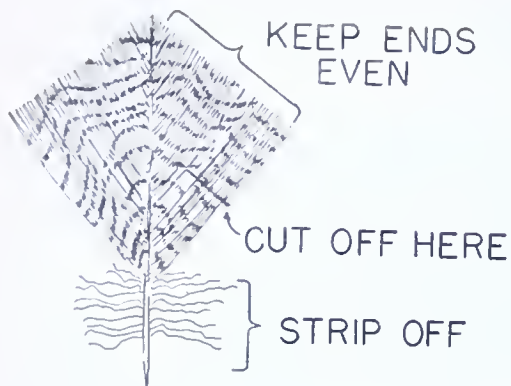
- Minter C. Jones, Supervisor
361 W. Lincoln St., Somerset Pa. Phone 5324
1. Dean Davis, S. Main Ext., Box 67,
Punxsutawney, Pa. Phone 841-R
 2. Claude Baughman, 603 E. Main St.,
Roaring Spring, Pa. Phone 384
 3. Supervisor
 4. James Banning
Connellsville, Pa. Phone 946
 5. Budd R. Brooks, Box 389
Washington, Pa. Phone 2071-J
 6. Anthony Discavage, 168 S. Water St.,
Kittanning, Pa. Phone 427542
 7. Arthur L. Walker, R. D. No. 2,
Indiana, Pa. Phone 57155
 8. Sam F. Henderson, R. D. No. 2,
Greensburg, Pa. Phone 2684

NORTH EAST DIVISION

- C. W. Shearer, Supervisor, Box No. 3,
Sweet Valley, Pa. Phone, Dallas 48427
1. Willard G. Persun, R. D. No. 1,
Towanda, Pa. Phone 283J1
 2. G. Max Noll, 2 Church St.,
Montrose, Pa. Phone 149M
 3. Ralph Singer, Tafton, Pa.
Phone, Hawley 3409
 4. Floyd Bachman, 49 Broad St.,
Stroudsburg, Pa. Phone 449
 5. To be filled soon.
 6. Charles Litwhiler
Numidia, Pa. Phone 2734
 7. Supervisor
 8. H. F. Reynolds, 4 Spruce St.,
Tunkhannock, Pa. Phone 6297
 9. Keith Harter
Dalton, Pa. Phone 33341
 10. John A. Schadt, Jr.
Lake Ariel, Pa. Phone 2051

SOUTH EAST DIVISION

- John S. Ogden, Supervisor
242 E. College Ave., York, Pa. Phone 7434
1. B. F. Barnhart, R. D. No. 1,
Elizabethville, Pa. Phone 34R23
 2. Anthony J. Lech, 420 Hess St.,
Schuylkill Haven, Pa. Phone 566
 3. Warren Miller, Acting, R. D. No. 3,
Allentown, Pa. Phone, Hemlock 40240
 4. Thomas B. Karper, 1426 Astor St.,
Norristown, Pa. Phone 52335
 5. Horace A. Pyle, 1507 Sterling St.,
Coatesville, Pa. Phone 1279-R
 6. Paul Martin, Jr., 332 Greystone Road,
York, Pa. Phone 83943
 7. Norman W. Sickles
Bernville, Pa. Phone 4R11
 8. Robert J. Bielo, East Petersburg, Pa.
Phone, Lancaster 45252



BREAST
OR
FLANK

(19)

Fly Tying

... via simplified methods

PART III

By GEORGE HARVEY

Associate Professor, School of Physical Education and Athletics
The Pennsylvania State College

Illustrations by James Cartey

Winged Wet Flies



LARGE FLANK
OR
GRAND NASHUA

(19)

MANY fly tyers and fishermen contend that wings are useless and do not add to the fishability of a fly. I am sorry that I am unable to defend this thought because wings seem to belong on every fly. Most of the flies we fish with today are tied with wings. Bi-visibles, hackle flies and some palmer flies have no wings. It may be of interest to know that of my many fly-tying acquaintances (and it numbers in the thousands), the only ones who admitted they saw no use for wings

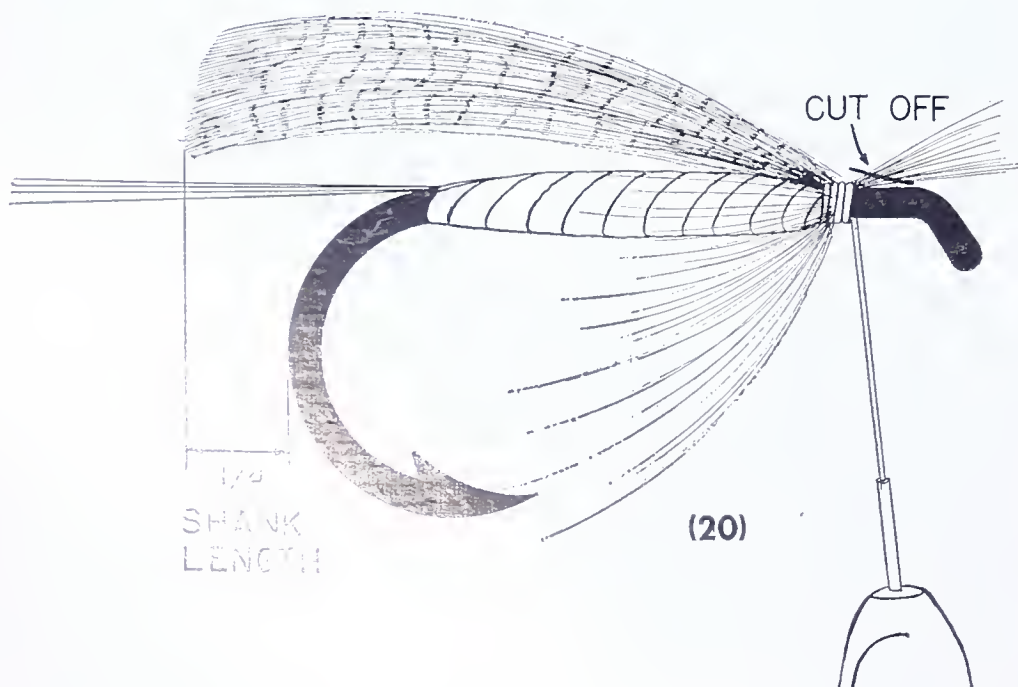
were the ones who could not tie a decent fly with wings. I might add that the true artisan would never think of omitting the wings on a pattern that called for wings.

Not long ago, an elderly man who had been tying flies for many years dropped in to see me about his fly-tying problem. Yes, you have guessed correctly; his trouble was "wings." Like all fly tyers, he produced a box containing a sample of his handiwork. His flies were exceptionally well tied in every respect, except the wings, which were terrible. When I told him I could remedy all of his troubles in just a few minutes he looked, and I believe he thought, "You don't know me." Nevertheless, in less than an hour he had mastered the few fundamentals and was tying winged flies as if he had been tying them all his life. When we finished, he turned to me and said, "It really is simple when you know how."

This is true and any tyer who carefully follows the illustrations and explanations can tie winged flies. Let me caution you to be careful in the selection of the material you use in every fly. Poor material is hard to work with and is very discouraging to the beginner.

Diagram No. 19.

The first winged fly that I will describe will be the simplest to tie. The



(20)

most common feathers for this type of wing are the breast and flank feathers from various species of ducks such as mallard, teal, wood duck, canvas back, etc.

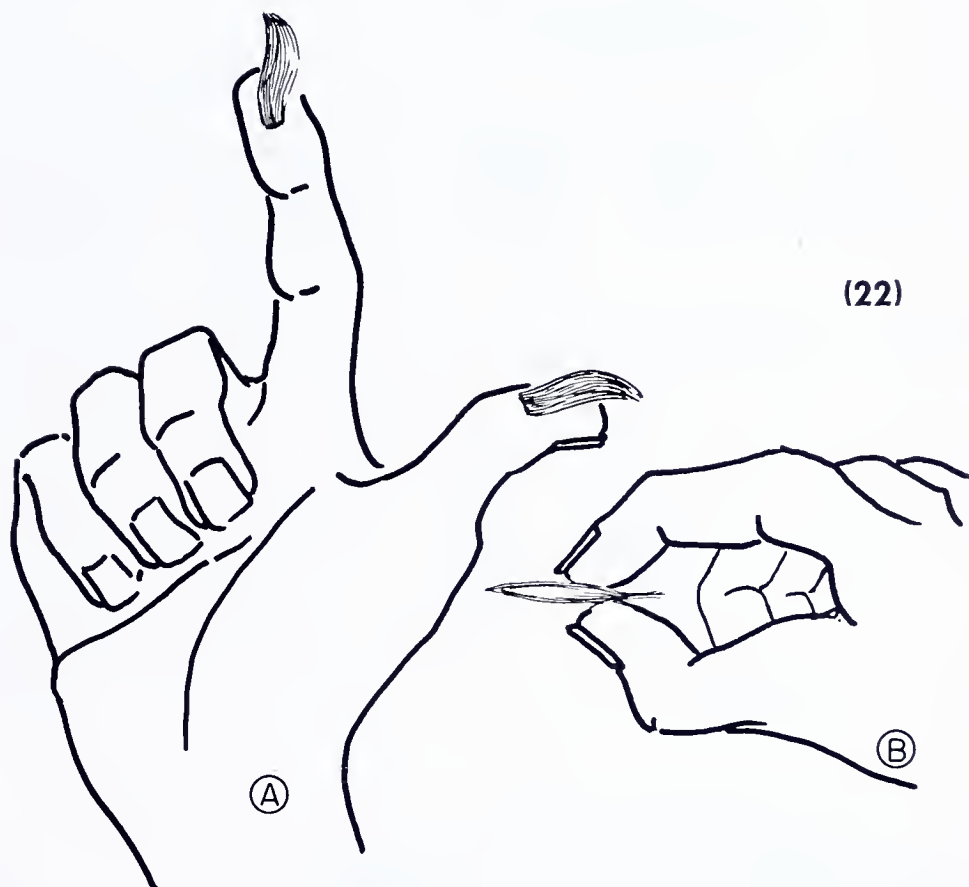
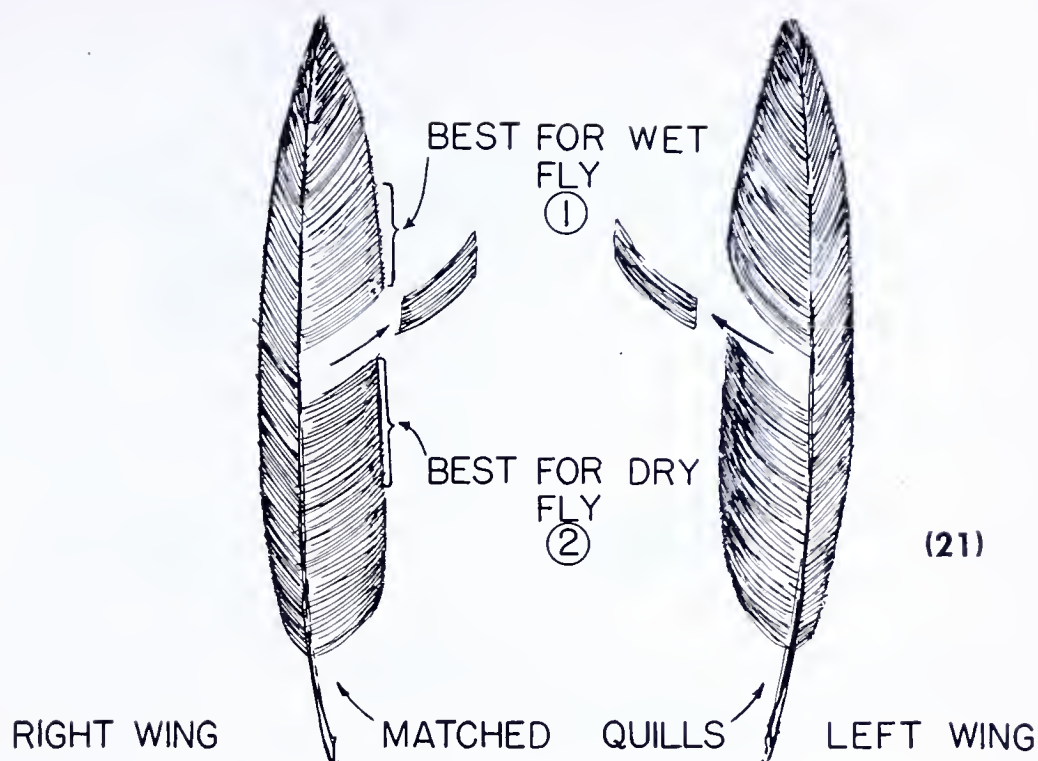
Diagram No. 19 illustrates how to prepare the feathers and where to cut the sections to be used. First of all, tie a common hackle fly. In case there is any question in your mind about this fly, review diagrams 3 to 10 in the January issue of the *ANGLER*. Let me remind the tyer that the body should be slightly tapered toward the head of the fly. A body that is too heavy at the front end will tend to make the wing stand up too high. Be sure you do not run the hackle up close to the eye of the hook or there will not be room to tie on the wing or wings, and it will be impossible to properly finish off the fly. When the hackle is secured, better throw on one half-hitch so that, if the wing slips or must be removed for another try, the hackle will not come unwound. With the preceding points in mind, you are ready to begin. Now take scissors and cut off the hackle fibers on top of the fly (Diagram 19). This cutting is optional but seems to make a neater fly. Take breast or flank feathers and strip off downy area at the bottom and up from stump end until the fibers are uniform in quality, and as near the same length as is possible, in the area you are going to use. Keep ends of fibers even. Cut out section and roll together so the fibers are all in one bunch.

Diagram No. 20.

Now hold by butt end with thumb and index finger of right hand. Lay along top of hook so you can see how long the wing will extend beyond the hook. Most wet-fly wings should be about one-fourth longer than the hook. Now, trade hands and tie in close up against the hackle using the same procedure as was used to tie on the tail (Diagram No. 4). As soon as the wing is secured with several turns, cut off as diagrammed (Diagram 20). Make enough turns to cover up material and finish off in the usual manner.

Diagram No. 21.

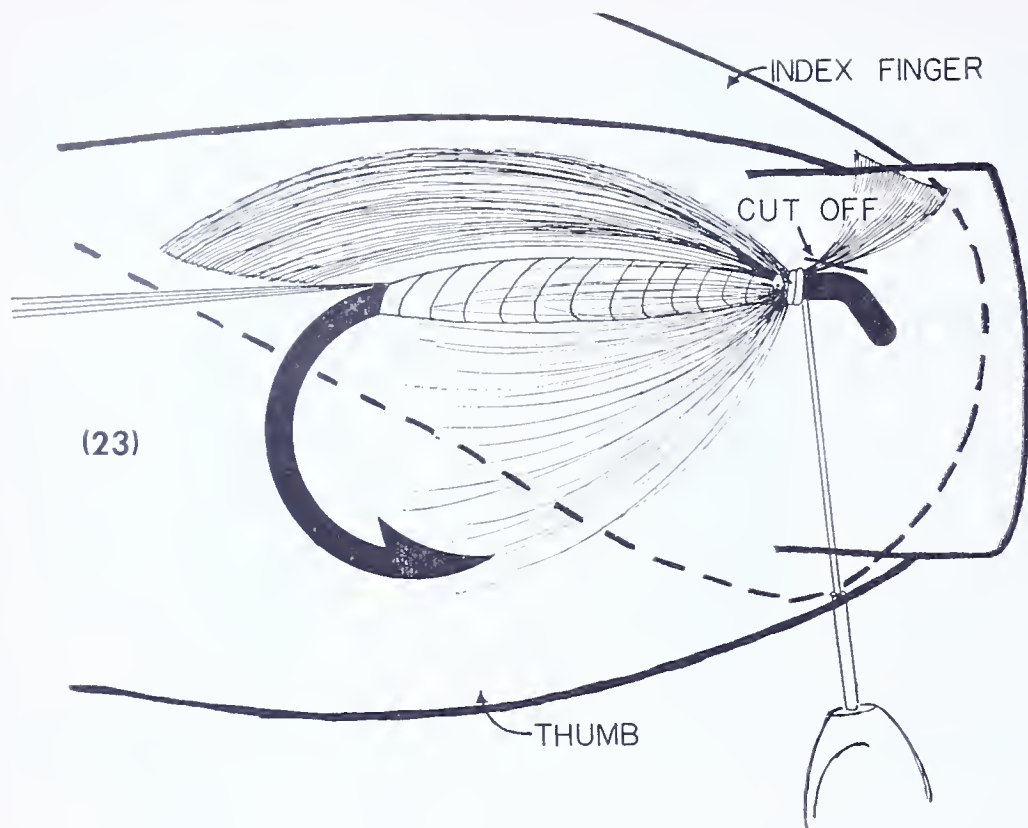
Wing quills are most frequently used for the wings of wet flies. Many species of birds have suitable quills. Duck wing quills are probably more commonly used than any other; at least, they are the best for the beginner to practice on because the fibers hold together quite well. Study Diagram No. 21. Notice that the center half of the quill is usually the best. Select two matched



quills; by this we mean one quill from the left and one from the right wing. They should be as near the same size as is possible. Now cut a section from each quill about three-fourths as wide as the gap of the hook you are tying on. The tendency is for the beginner to get the wings too wide. Now place wings together so the concave surfaces are facing each other.

Diagram No. 22.

This diagram illustrates one method of placing the wings together. I believe it is the easiest and quickest way for anyone to get the two wings together. Moisten the thumb and index finger of the right hand. I use my tongue. Notice the angle at which they adhered to the thumb and finger. This angle is right for me but may not be



for you if your finger and thumb differ from mine in angle of grasp. Experiment until you find the correct angle. When the thumb and finger are closed, as (B), the tips of the wing section should match and the sides should be even.

If you have placed the wing sections on thumb and finger as diagrammed in (A), the contour of the fibers will be down. The wings may be tied on in this manner or reversed so that the tip ends point up. However, if they are pointed up, one usually holds them by the cut ends in the right hand and gently strokes the tip ends down with the left. This gives a nice, rounded end to the wings.

Diagram No. 23.

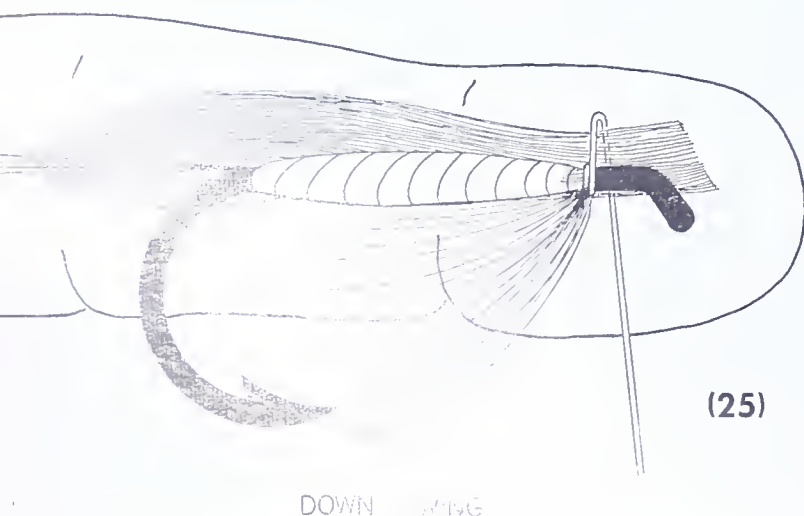
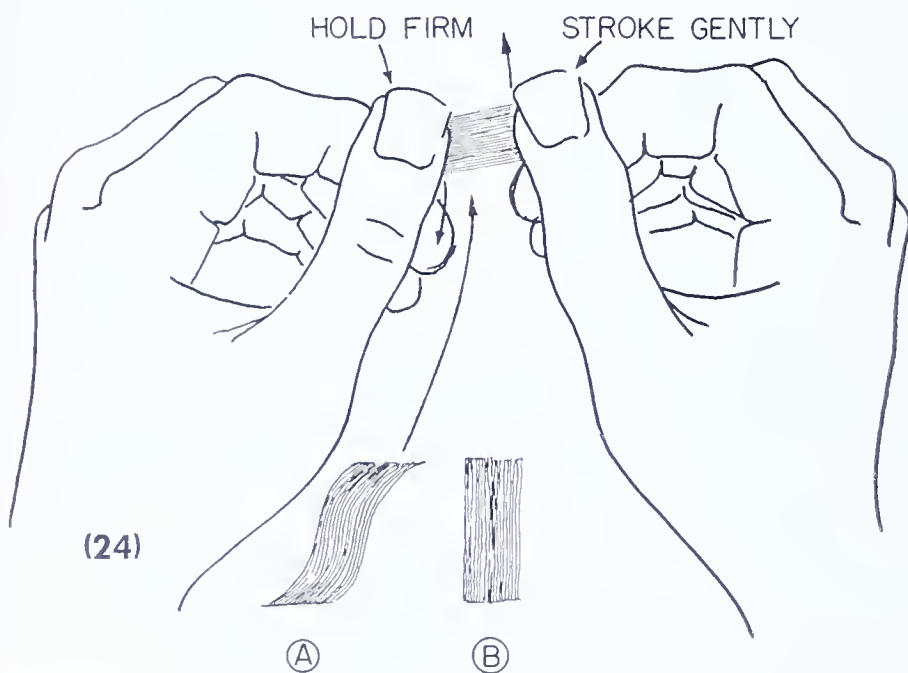
This is the closed wing wet fly.

Hold the wings between the thumb and finger of the left hand. Check diagram carefully for the correct position. Note that the thumb and finger straddle the shank of the hook and that the wings lie down and are in contact with the top of the body. The tips of the thumb and finger, when closed, should extend to (or slightly beyond) the eye of the hook. All other operations are the same as described in diagram No. 4. Hold the wings firmly until they are secured. Once you have made a turn or two around the wing, never make another turn back of the first one. If you do, this will turn, fold, or split the wings. The technique just described is one of the most important in fly tying. Once you have mastered it, you will never have trouble setting any kind of wings.

Diagram No. 24.

This diagram illustrates how one section from either a right or left quill may be formed to make the wings for a wet fly. This technique is seldom used by the average tyer, but is quite

(Turn to page 27)



IT HAD been a grand day on lower Florida Bay. All alone, I'd thrilled to the unspoiled tropic vastness of the Cape Sable jungle; endless miles of brilliant milk-green water; great tawny Gulf sky overhead, with pelicans pumping and sailing; big tarpon jumping in the distance.

I'd stood there in the drifting skiff, tossing favorite plugs at schools of top-feeding fish and letting the hot sun probe deep into my nearly naked body to bake out the aches and tension there.

Late that afternoon—on the way home, empty-handed—I'd stopped at a fish market. It was there that big Bill Whatshisname, driving past in the street, spotted me.

"What're you doing in *there*?" he'd yelled accusingly, thrusting his grinning head out the car window after several incessant blasts of the horn.

"Buying some fish."

"For bait—I hope!" It was obvious he wasn't hoping anything of the sort.

"Nope. For tonight's dinner."

I saw his lips twist as he drove off. He'd noted, of course that I wore fishing attire. Already he was planning the story he'd be spreading around at my expense.

I paid for my purchase—a couple pounds of Spanish mackerel—and went on home where my wife would be waiting to prepare them for dinner.

You see, Bill had no way of knowing it, of course, but I'd actually caught plenty of fish that day; mostly sea trout, which I'd put back as fast as I caught them. Neither the Little Woman nor I like to eat the spotted southern cousins of the weakfish, so I'd purposely been using barbless hooks on my plugs, releasing dozens of the fish unharmed at the waterline.

The point of this article, however, is not whether I caught fish that day. Instead, it is my disgusting observation that a lot of guys like Bill still get a weak charge out of the by now done-to-death cartoon that depicts some furtive sport fisherman slipping into a fish market only to be caught in the act of buying his "catch."

Nuts. Why shouldn't he buy it? It's certainly much easier than transporting home a mess of slimy fish in the family sedan. Not to mention the chore of cleaning them at day's end when you're already dog-tired. Too, it leaves more fish behind in favored pool or stream to be caught another day.

As for the trite cartoon angle that the Little Woman will be deceived into believing that Her Big Man got 'em

by himself, that's ridiculous. Any sportsman's wife soon becomes shrewdly aware of the glaring difference between "caught" and "bought"—especially when the Old Man brings home croaker or mackerel when she knows full well that he went after trout or bass. Besides, most states prohibit the sale of game fish, particularly the fresh water variety.

Don't think I'm trying to glorify the commercial fisherman who makes the fish market possible. I'm not. I resent the guy. Like most sportsmen I'm not even interested in analyzing my resentment for him, and I'll probably carry it to the grave. Maybe it's his method of taking them that I don't like.

Nevertheless, it's no secret that the commercial man—providing he obeys the law and takes only legal size fish—actually aids fish propagation considerably, thereby improving my sport.

And that's what I fish for—sport. And so do you. If we fished for food we'd be crazy not to buy them at the market instead. Surely it's much cheaper.

There are those guys, however, who will insist that they fish for food, with any sport involved being considered merely incidental. My sarcastic comment to this is always that they are (1) cockeyed liars, or; (2) the world's most disillusioned men.

Should you be one of the "meat-fishers" and wish to determine into which of these two categories you fall, here's how to tell: I know where big tarpon hang out; 100-pounders and upwards. To see these big silver beauties come crashing out of the mangrove roots, trying to shake your plug from their great jaws, is really something to behold. I also have ready access to a guide and boat to take us deep into the Florida Keys where big sharks bask in the shallows—real tackle-busters—waiting for a bait.

Would you accept my invitation to go along on either of these trips? You would—even knowing that one doesn't eat tarpon or shark? Brother, you're in the "cock-eyed liar" class; you're like me, you fish for sport, not for meat.

But perhaps you're still insistent, like a chap I once knew from western Pennsylvania. This guy—we'll call him Hogan because that's his name—was an up and coming young businessman. He'd become shrewdly aware of the Fish Commission's activities in stocking the Commonwealth's streams and ponds

(Turn to Page 28)

The Value of Fish Markets

By George X. Sand

Mr. Sand, nationally known outdoor writer for more publications than we can mention, defends the far-from-famous "fish market." There's humor and a splendid conservation message here too. Better get your specs on and read it!

RESOLUTIONS ON FISH

APPROVED AT SEPTEMBER, 1952 MEETING

AT THE

FEDERATION OF SPORTSMEN'S CLUBS

1. NE: Due to the fact the buttons for the 1952 fishing were not delivered until the middle of January 1952, and no fishing license could be bought until the buttons could be delivered, WHEREAS it created a lot of misunderstanding and in some places embarrassment, and no one would commit themselves by saying whether it was legal to fish or not, AND WHEREAS it was necessary for the Pennsylvania Department of Revenue to extend the 1951 fishing license for the month of January 1952, NOW THEREFORE BE IT RESOLVED: That the Pennsylvania Department of Revenue see to it, to have the fishing license and buttons available at least thirty days in advance, or by the first day of the preceding month, of December. The said buttons to be bought from a Pennsylvania dealer, and made in Pennsylvania and made of a No. 1 quality.

APPROVED. The licenses and buttons for 1953 were all in the hands of the County Treasurers and Agents before the first of the year. The question of buying the buttons from a Pennsylvania dealer, and that the construction and quality be first class should be taken up with the Miscellaneous License Bureau, Department of Revenue. The Fish Commission would be in accord with this Resolution.

2. NE: Due to the fact that the present system of appointing special fish wardens is nothing more than a hit and miss proposition, and any one who is interested can get appointed special fish warden, WHEREAS we know that a special fish warden gets no pay, and we know that he gets no mileage for the use of his car. We know that no man can afford to spend a day or night to check and apprehend violators especially while working with the regular Fish Warden on road blocks without some kind of compensation. WHEREAS the special warden has no protection and if he gets into any difficulties he might lose all of his life savings, NOW THEREFORE BE IT RESOLVED, that the Fish Commission set up a way or means whereby the

Special Fish Wardens will have to take an examination for appointment, same as the deputy game protectors, and to give the special fish wardens the same protection and compensation as the deputy game protectors are getting.

The Commission would suggest that the law be changed so that it would be more difficult to secure a Special Fish Wardens Commission than it is at present.

3. NC: WHEREAS: The experiments being conducted by the State of Michigan on a six mile section of the North Branch of the Au Sable River strongly indicate the need for a change in our conservation endeavors in regards to trout fishing. THEREFORE BE IT RESOLVED: That the Pennsylvania Federation of Sportsmen's Clubs through an appropriate committee, conduct an investigation of the experiments, and report their findings to the next convention of the Federation.

The Fish Commission would appreciate having a copy of the Committee's report after the study has been made.

4. C: WHEREAS the fishing pressure has increased and WHEREAS there are apparently insufficient funds to (1) increase the number of wardens, or (2) meet the expenses incurred in distribution and enforcement, or (3) increase the propagation and distribution of fish, THEREFORE BE IT RESOLVED, that legislature increase the fishing license fee to \$2.50 to provide sufficient monies to carry on a program to meet the increased demands of this sport.

APPROVED.

5. SC: WHEREAS, Present statutes with reference to the regulation for the taking of fish authorize the use of any means "with the exception of explosives and poison," and WHEREAS, the prohibition against the use of poison prevents the Fish Commission, under its scientific permit, from quickly and efficiently changing the species of fish in various lakes, ponds, and dams, and WHEREAS, poison can be used safely, and such changes

in species are frequently desirable, NOW BE IT RESOLVED that the Legislature be requested to amend the present law to delete the word "Poison" from the prohibited means of taking fish by the Fish Commission.

APPROVED.

6. SE: Resolved, that present legislation permitting fishing from March 14th to April 15th in rivers, lakes and ponds not stocked with trout be amended to include "Canals" but not including head or tail races of mills not stocked with trout.

APPROVED.

7. NW: WHEREAS: A resolution which originated in the Northwest Division of the Pennsylvania Federation of Sportsmen's Clubs was adopted by such federation prior to the 1951 Session of the Pennsylvania General Assembly petitioning for legislation (H-1246) (1951 Farm Pond Bill), and WHEREAS: Such a bill was introduced in the Legislature but held in committee as of the adjournment of the 1951 session of the General Assembly, NOW THEREFORE BE IT RESOLVED: That the Pennsylvania Federation of Sportsmen's Clubs reaffirm its petition to the General Assembly for the renewal of such legislation with license fee for farm ponds of the nature contained in H-1246 of 1951 Session of the General Assembly, being held to one dollar (\$1.00).

APPROVED.

8. NW: WHEREAS: A former resolution which originated within the Northwest Division was adopted by the Pennsylvania Federation of Sportsmen's Clubs prior to the 1951 Session of the Pennsylvania General Assembly petitioning for legislation of a State Law providing suitable penalty for the act of the littering of various items of rubbish in streams and other waters of the Commonwealth and on lands adjacent to such streams or waters, and granting power of enforcement of the said law to fish wardens and other enforcement officers at the scene of violation of such law, and WHEREAS: Such legislation was passed by the General Assembly and thereafter vetoed by the Governor, NOW THEREFORE, BE IT RESOLVED: That the Pennsylvania Federation of Sportsmen's Clubs reaffirm its petition of the General Assembly for the renewal of legislation of the aforementioned law.

APPROVED.

9. SC: WHEREAS, the present motor boat licensing system of the number of cylinders is no longer an indication of size or power, and the owners of large racing motors may actually be licensed for less money than small fishing motors, BE IT RESOLVED: That the motorboat license fees be readjusted according to rated OBC Brake horse power which is used as a standard by the entire motorboat industry.

APPROVED.

their holds and gaining new ones.

The male Ruby jewelfish is a perfect example of unpredictable emotions bundled in a small body. His paternal instincts may be in perfect order one week, and the next he may be a raging demon. He may respect his mate and assiduously care for the eggs and the young. Without visible provocation, then, he may successively kill two or three mates and abandon previously well guarded eggs and young to the gods of chance and destruction.

Leaving the topic of impudence and pugnacity, let's glance at the social lives of fishes, as applied to spawning and the peculiarities and mysteries attached thereto.

In the pageantry of periodic treks to areas favorable to the deposit and fertilization of eggs, the sluggish paddlefish holds the distinction of being one of the few fish whose spawning grounds are unknown. The fry are never seen until they are about six inches in length. And the sturgeon, in its own unyielding way, has never given up the secret of how many annual spawning trips each fish makes. But it is known that the female deposits up to 2,400,000 eggs. (As an aside it can here be fittingly mentioned that the sturgeon is the only fish in the world with the helm of bony plates on the head, united by sutures, and an armor with a row of bony shields, twelve rows on each side, along the back).

The swordfish has always played a coy game with those who sought to study its breeding habits. Young swordfish have been found only in Mediterranean and Japanese waters in winter, and this offers the only clue thus far to their breeding and migrating habits.

To barely scratch the surface of the singular aspects of the spectacular spawning and rearing processes would require the fine-print filling of many pages. You'd want to describe the exceedingly long journeys frequently made by the whitefish and the salmon; the tarpon and the phenomenal number of up to 10,000,000 minute eggs deposited by the female; the matchless fatherly devotion of the male brown characin and the lump-sucker to deposited eggs after mating time; the female pipefish, which, like the female seahorse, lays her eggs in the

incubating pouch of the male; and other fish that do similarly remarkable "connubial" things almost *ad infinitum*.

The question: "Can fishes detect differences in colors?" has been asked in one form or another countless times. While it is true that fish may not see colors exactly as we do, tests have proved that they can distinguish differences. They have been trained to accept red-dyed food and abjure blue-dyed food, and vice versa. It is believed that the trout is more sensitive to color than any other fish—perhaps because his vision is extremely keen. Some fish, on the other hand, are extremely nearsighted, some are totally blind, and some deep-sea types even possess telescopic eyes!

Do fish sleep? The answer is a vociferous "Yes!" The lack of eyelids in no way brands the fish as a perpetual victim of insomnia. He may sleep in "cat naps" or in lengthy periods of dead-to-the-world slumber. A small Bermuda fish even covers itself with sand in preparation for repose! The Wrasses sleep on the bottom on their sides; others, such as the flat-fishes, may sleep near the surface. Grey mullets schooled together during the day break up at night, each sleepily taking its own spot on the bottom. Trout in the Brule River in Minnesota have been observed resting and sleeping in a curious formation, lined up like soldiers, all facing in one direction. J. R. Norman, in his "History of Fishes" cites several instances where fish were sleeping so soundly that they could be lifted briefly from the water without disturbing their slumber.

A few fishes are equipped with nature's mysterious faculties which permit functioning of the hibernating mechanism. They do not fall into a complete coma like hibernating mammals, but simply cease to feed and become more or less torpid. The carp, for example, moves into deep water and makes a cavity in the mud or sand and remains there, usually huddled together in groups, until spring. The tench actually spends the winter buried in the mud, and fresh-water eels usually follow the same practice. In one degree or another the plaice also hibernates, as do certain fishes in coastal waters of Africa and India.

Man has learned to find profitable advantage in the natural habits of some fishes, such as the previously men-

tioned fighting fishes which bring betting and admission revenues in certain Far Eastern regions, and the shark-sucker or remora which is curiously used as a fishing device.

The remora, equipped with a panel or plate of sucker-disks on top of its head, uses the suction device to obtain transportation in this manner: It fastens itself to other fishes, usually a shark—hence the name "shark-sucker"—and is thus towed from one feeding ground to another, using the method of locomotion not because it is a poor swimmer, for indeed it is swifter than the shark, but because it does not believe in using up energy when nature has so generously provided the simple arrangement for painless adhesion to obliging travel hosts.

Centuries ago man reasoned that a harnessed sharksucker, released in a school of edible fish, would immediately seek a fish to which he could attach himself and hope for escape. Remora fishing was recorded by Columbus on his first voyage to the Americas, and in other parts of the world the idea was even then an old one.

Able to lift up to 24 pounds by actual test, fishermen using this strange living "hook" fasten a strong leather thong about the sharksucker's tail and fling it into the water. The sharksucker, which seldom is more than two feet long, races almost uncannily for a fish of adequate size for anticipated transportation and presses the suction disk to the victim's abdomen in one swift upward thrust of the head. A struggle begins when the control line is gradually drawn taut. But the sharksucker rarely loses his hold, and both he and his unwilling host are pulled out of the water. Once the remora is no longer submerged, his hold weakens rapidly, and in less than half a minute he can easily be disengaged from the other fish which, of course, becomes the property and sometimes the prize specimen of the successful but definitely unconventional angler.

The practice of fishing by means of sharksucker is carried on sporadically in Cuba and Colombia, S. A., but is far more common in northern Australian and East African waters.

In the vast inter-mingled family of true fishes there are luminous members and those able to deliver an electrical shock; some can sting, some are covered with poisonous slime; and even the meat of a few types can cause almost instant death (the Muki-Muki or Death-Fish of Hawaii is per-

haps the most deadly poisonous of all). There are fishes that can "sing" and produce a variety of flat or hollow sounds, and some carry virulent charges of venom. There are gluttons, too, in the fish world. One among many is the Zebra-fish which often will eat so much that it perishes of indigestion. In captivity their diet must be carefully regulated.

Naturally these bizarre variations in characteristics have throughout ancient

times given rise to weird legends and myths—tales about healing fishes, mermaids, sea serpents fifty feet long, fishes that were rained down out of clouds, fishes large enough to hold ships still, and fishes that were as old as the world. The absurdity of these stories is, of course, mainly attributable to ignorance. Even the wise Pliny said there were but 176 species of fishes. Today we know there are more than 20,000 species of true fishes, and more

than a hundred new forms are discovered each year.

With all of their social peculiarities and mysterious behavior, fishes have always been of great economic importance to the world. Some countries feature a fish on their national flag; others have them on seals or emblems. The United States is no exception, for today the image of the codfish surmounts the flagstaff of the capital of Massachusetts.

Putting 'Em In

(From Page 7)

population to a number consistent with the available food supply.

When trout are to be stocked, word is sent to the District Supervisor, local fish warden, local sportsmen's clubs, and other interested individuals if there is no club near this water area.

A meeting place is arranged in the community nearest the stream to be stocked. This is likely to be a prominent building such as the post office, city hall, a bank, etc.

All arrangements are made to the minute since there must be no delay in getting the trout to the stream or lake from the tank trucks. Although new aerated tanks reduce enroute fish losses to nil, a certain hazard remains at all times. Any lengthy delay could be costly.

At the appointed time, cars arrive containing sportsmen who frequently are snatching time off from their regular work. Whether there are only a few or a hundred men present, the stocking must move on schedule. Late comers either take a chance on finding the fish trucks or return home.

The distribution is under the complete direction of officials of the Fish Commission and accordingly are placed in approved waters which are open to public fishing.

With the commission stocking some 1,000 miles of trout water with legal sized fish, there are members from over 1000 sportsmen's groups assisting. Of course, there are times when some of the groups cannot participate and when only a few are present from clubs that are represented.

From January 1 to April 14, there were 1,225,317 trout of legal size, weighing about 150 tons of fish. During the mid-season stocking period followed, another 908,000 trout were stocked, or about 124 tons were distributed. This

trucks traveled 200,000 miles stopping every half mile and stocking fish.

Although these figures are certainly impressive, the mileage figures are only about one-fifth of those 14 years ago for a comparable stocking. Improved methods, better highways and aerated trucks have helped to improve efficiency, but a large share of the credit goes to volunteer sportsmen.

From the standpoint of sport itself, the biggest dividend provided through use of a large crew in stocking operations is in the distribution of the fish.

Many of the helpers bring their own receptacles in the form of milk cans and large buckets. With these, they can carry a considerable number of trout back through the brush and across fields to scatter the fish over a wide area of the stream.

It is hard and sometimes extremely muddy going to transport trout to points where the highway is far from the creek. At other times both the fish and the workmen get a break. It is sometimes possible to drive the truck along side the stream. Then it is simply a matter of carrying the fish in hand nets a few yards to the water.

Most helpers follow the trucks in their own cars. In that way, a couple fellows can take off through the woods with a can of trout while the fish truck moves ahead to another spot. These fellows catch up and repeat the process.

So far, this sounds like all work, and those who have never assisted with a trout stocking may be wondering where the sport comes in. Others may question if possibly these fellows who follow the fish trucks do so with a personal motive. Both are fair questions.

Trout stocking is the same type of work as certain types of trout fishing. I know of one little trout stream where

a ten-inch brookie is a big one, and you have a 40-minute walk uphill before you can even start to fish. With hip boots on, that's rough work in summer. And sometimes I come home empty handed, but happy.

Every angler enjoys seeing fish at any time of the year. And, it is a real thrill to watch a can-full of trout fanning themselves in the clear water after they have been planted, getting the feel of the current and absorbing the temperature of the stream. Everybody likes to watch when an especially big one takes off from the net or can and cruises down into deep water or lies fanning the ripples while he plans his next move. It is probably the last sight anyone will have of him until he is led to a landing net.

It is always a source of amazement to observe a pool teeming with stocked trout one minute, and then to come back a half-hour later to discover the pool apparently barren of any fish life. What better chance is there to study the actions of trout in their natural surroundings!

There is a fellowship among those who volunteer their services that is found only among men engaged in doing something for the common good. They are there because they know their combined efforts will provide a wider distribution of the trout and give the finny fellows a better chance to survive the first big rush of fishermen. They have the satisfaction of knowing they are doing a worthy service and enjoy doing it. Certainly it is work; pleasant work.

As to selfish motives . . . of course there are those who appear only because they want to know where the most fish are being stocked. However, most of these fellows assist only once and lose interest when they discover that fish stocking is work. Usually, if the stream is open to fishing at once,

they have their rods ready in their cars and frequently drop off as soon as they have a pool well loaded with trout.

On the other hand, the repeaters, the boys who help year after year, often are not found on that particular stream until weeks after the fish are stocked and the number of anglers has thinned to provide a reasonable amount of privacy. And, if it is a mid-season stocking and they do stick around for a little fishing, you will seldom see them take many fish home.

Of course, there are those who merely follow the fish trucks and con-

tribute nothing toward the stocking other than their presence. They compose the minority who are always with us ready to take advantage of any situation that doesn't require anything of them.

This information is not new to those who each year help the Fish Commission in their splendid trout stocking program. Nevertheless, they continue their unselfish efforts with no prospect of return beyond the personal pleasure and satisfaction that is their reward.

The Pennsylvania Fish Commission works closely with sportsmen's clubs

because they are organized to lend assistance. It is a happy circumstance, because in such clubs are likely to be found the type of sportsmen most interested in improving sport astream. Whether or not you are individually able to lend direct assistance in such efforts, you can help by encouraging sportsmen's clubs with your membership.

Meanwhile, all anglers owe a debt of gratitude to those who are able to and do give devotedly of their time and effort to improve fishing for everyone. But, don't go feeling sorry for them.

Most of them consider it sport.

Fishing — 3000 A. D.

(From Page 11)

islands called the Ozarks, this Rocky Mountain chain here at Denver, and the Sierras to the west. Things have leveled out, and we do not have the upheavels of nature that occurred in the Twenty-First and Twenty-Second centuries; but the aftermath is still with us in land flats that could be used for agriculture, but which have been ruined by saline deposits. Terrible wars followed the encroachment of the seas as nations battled each other for possession of desirable land masses, and they nearly ended man as a race.

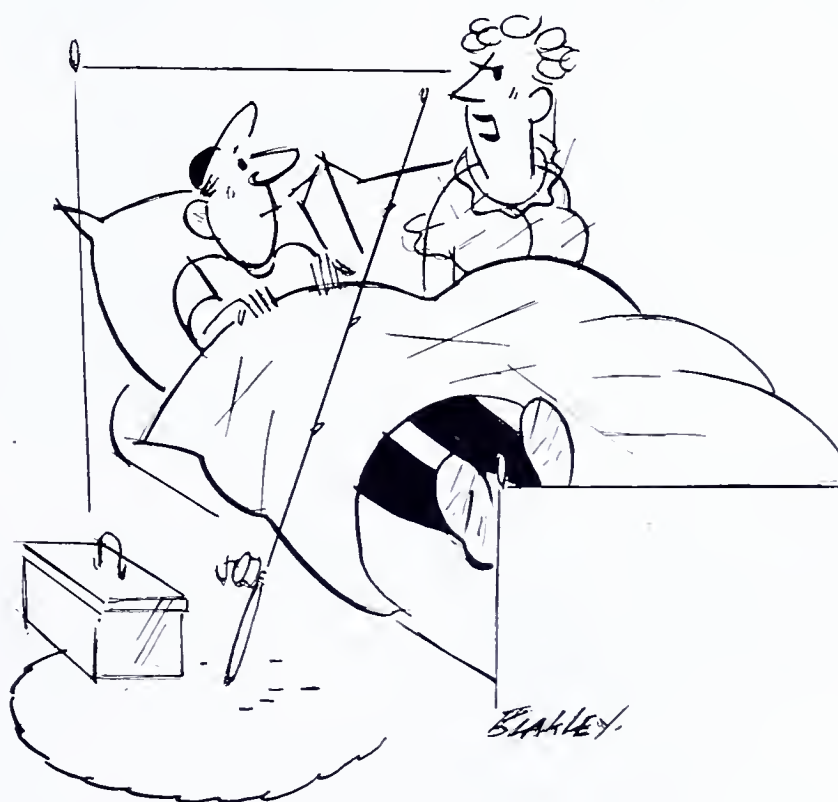
"Unhappily, the land left was the worst on the globe for agriculture—the barren mountains and the thin-soiled northland near the pole. So man turned to hydroponics to raise his vegetables. Fresh water is even now at a premium, and it is channeled carefully by canals to the hydroponic gardens where it irrigates the crops grown in trays. Our topsoil—such as was left—was exhausted centuries ago, and only a few weeds grow on the earth without cultivation. A few wild animals survive." Wlm's eyes lighted at a recollection. "We killed a rabbit once in what used to be Saskatchewan, and cooked it according to an ancient recipe that I knew. It was very good, but it made us ill. We weren't used to eating what they called 'meat.' Proteins we have a-plenty, of course, from the sea. Shellfish grow in the brackish waters right up to the slopes of the Rockies, and there are great commercial fisheries below where Chicago once stood.

"When things looked blackest, the human race reached out for the stars." Chrln followed Wlm's gaze through the transparent canopy over their heads. "Scientists had already reached

the moon in 1965, but it held little that man needed. Somehow, the knowledge, the know-how, was saved from the ruins of earth on microfilm and in memory machines, and man looked to the planets. Mars was reached 200 years ago, Saturn in 2903, and your father was among the Venus pioneers only 50 years ago. Mercury and Pluto were ignored as unimportant after exploratory trips, and our expedition to Jupiter about ten years ago brought back sample minerals. We had to reach the planets for essential minerals and plants."

"But," Chrln took another wafer as he leaned forward to interrupt Wlm, "what about sport fishing?"

"It disappeared for centuries," Wlm replied. "Man had no time for anything but survival, and he could get all the fish he wanted by chemical or electrical means, just as he does today. Then, an antiquarian found a microfilm of a book written in 1955 by a man named Lewis Gilmore, called 'Spinning for Bass.' That was several hundred years ago, and described a way of having fun catching fish with queer devices called 'hooks' which were thrown out and pulled through the water. The antiquarian tried it, liked it, and interested others. Now, there probably



"All ready to go tomorrow morning I see!"

are several thousand sports fishermen in the universe, including several here at Denver, the capital of Nrth Mrca. They improved upon the ancient art, naturally.

"I had plenty of time and erg-credits, thanks to my father, and started fishing when quite young. I have caught fish in the canals of Mars, but didn't like it." Wlm stirred uneasily. "There is something human about them, as though they were your mental equal, which they are in many ways. No, I don't like the way they try to tear the hook from the mouth with their 'hands.' And, as for your monsters on Venus—" Wlm said something that sound like "Bah!"—"No, the Interplanetary League of Anglers stick pretty much to earth fishing, although we have few streams containing trout and bass. We make no attempt to take the big commercial fish of the oceans and inland seas, and indulge in our sport purely as recreation.

"However, Lewis Gilmore's book hinted that there were other sports methods of catching fish in the ancient past of his time, although he didn't describe them. Then, I got a clue about twenty-five years ago when we found what the Old Ones called a Time Capsule right here at Denver. It seems they dedicated a building around 1970, and buried in its foundations a metal alloy container holding records of that time, including a 'magazine,' as they called one of their odd books then. It was called 'American Outdoors,' and apparently the building was to be the new home of the publishing firm. It mentioned something called 'plug casting,' something known as 'fly fishing,' and, most mystifying, a thing known as 'bait fishing.' The ancients apparently knew many ways to catch fish for fun. We could figure out fly and plug fishing, which weren't unlike the spinning we first learned; but the bait angling puzzled me. I did the research on the 'magazine' for the Interplanetary League," he explained.

Wlm glowed with an inner, secret pleasure. "Recently, I found a microfilm of a still older book than Lewis Gilmore's 1955 volume. It was an 1889 edition of 'The Compleat Angler,' written by the famous Izaak Walton and Charles Cotton, and edited in 1889 by one John Major. But 'The Compleat Angler' was much older than that edition—going back, I believe to 1775 or thereabouts. Think of that, Chrlsn! Nearly 1500 years ago! And I gave me the final secret of the ancients. No, no—" he waved aside the inquiries that

leaped to Chrlsn's lips. "—I'll show you tomorrow. We'll fish for rainbows here near Denver. We could go to the Appalachian highlands for brook trout, but it would take several hours, and it would take a full day to reach the Andes in my fishing craft because it is slow. Besides, the Andean trout are too sluggish. But, let's go to bed now."

Next morning, Chrlsn wore dark glasses against the bright sunshine as he helped load food aboard the hel-vol Wlm used for fishing. "What are those sticks?" he asked once when he noticed two long pieces of wood lashed outside the little craft. "Oh," Wlm dismissed them casually, "that was once called Louisiana cane. There's no more Louisiana now above water, but the cane still grows in our marshy places here in the Rockies." They got aboard, the craft rose straight up, and headed slowly at several hundred miles per hour for the eastern slopes. When they reached a sparkling clear stream, racing down toward the Mississippi Sea, Wlm brought the hel-vol down to within two feet of the surface, and showed Chrlsn how the modern fished on earth.

"We eliminated the long rods of the ancients," he explained as he rigged up, "and devised this hand rod. See, its length is little more than a foot, and it is very fine but strong. This glove affair fits over the hand and the four buttons that meet the four fingers control the fishing. You press one to cast—" there was a "zing" as the midget lure shot out on its nearly invisible line to land near the bank. "—and press the second to retrieve, thus." He made several casts, then there was a strike and the fine metal at his hand's end vibrated. "You give the fish line by pressing the third button." The rainbow leaped clear and started to race downstream with the current. The hel-vol followed it slowly as Wlm played the fish. "When it is exhausted you bring it in by pressing the fourth button which gives the power reel more energy than the retrieve button can." The rainbow was netted, and released.

They traveled twenty or more miles above the stream, Chrlsn trying the hand rod which was unknown on Venus where the "fish" weighed hundreds of pounds. Suddenly, toward evening, Chrlsn remembered something. "But you promised to show me the secret of the ancients," he reminded Wlm. Wlm grinned. "I've been waiting for that," he said. "I'm anxious to try it myself. See that cane pole that you were asking about. Well—" he un-

lashed one of the poles, fastened what looked like coarse string to one end of it, then tied on a hook at the loose end of the line, which just about matched the pole's 11-foot length. Above the hook he fastened a piece of lead that excited Chrlsn's curiosity. Above that, he attached an oddly-shaped piece of cork. "That's a float, or a bobber, I understand from the 'magazine' I deciphered," Wlm explained, "but the method is basically from 'The Compleat Angler.'"

He disappeared inside the hel-vol cabin, and emerged with a plastitainer that was perforated at the top with many holes. He took the controls and maneuvered the craft until it made a landing on the bank beside a deep pool. He took the plastitainer, turned his back on Chrlsn, who was consumed with curiosity, and did something to the hook. Chrlsn caught a glimpse of something reddish-brown on the hook as Wlm swung the line into the water. The lead carried the hook out of sight, and then the cork float rode motionless on top of the water.

Both men watched it silently, Chrlsn not knowing why, but interested. Wlm was enrapt. Suddenly, the cork bobbed violently, then plunged out of sight. Wlm gave a great heave, and a silvery trout flashed through the air and plopped on the bank beside them.

"I did it!" Wlm shouted, his customary reserve deserting him. "I learned it from Walton." Chrlsn stared at him. "What did you do?" the Venusian asked.

"Caught a fish with the secret of the ancients!" Wlm exulted. "Look!" He opened the plastitainer, and Chrlsn gazed, puzzled by the wriggling red-brown things in the moss. He had never seen anything quite like them. "This day 212th 3000 will go down in fishing history," Wlm went on. "See, Chrlsn, they're worms!"

Chrlsn touched one tentatively. "What are worms?" he asked.



Life With A Fly Tyer

(From Page 13)

Garters. Boxes are a pain to us too, for whenever we give him a gift, no matter how fine it is, he is more interested in the box. He is so fussy about this room even the pet cat will not enter. However, we think the cat has reasons for we once found a patch of fur missing on him and we have always suspected it was used as an experiment in making some new type of fly.

Late one night when Father had just started all these shenanigans and we were more or less green about the whole thing, the telephone rang. The man at the other end of the line asked for Father and this is the ominous conversation we heard at our end: "When did he die? Have you done anything with him yet? How old was he? Is his color good? I'll be right over!" There we sat with chills racing

up and down our spines, wondering who was dead and when the funeral would take place. Well, fortunately no one had died and Father wasn't needed to assist the mortician—it was just a pheasant raiser calling to say he had lost a fowl and to inquire if Father would like the neck. A few more scares like that and we would have needed the undertaker.

Some well meaning friends pointed out fly tying as a nice hobby and how it improved the tier's outlook, kept him interested, at home and a lot more such hooey. It might keep Father at home but there isn't a wolf in the country who has a keener eye for chicken, and we mean chicken—the Plymouth Rock and Rhode Island kind. Once, just as we were enjoying a leisurely Sunday ride around the countryside Father yelled "Stop!" We

immediately applied the brakes and came to a screeching halt with thoughts of a flat tire or some mechanical failure only to learn Father had spied a Plymouth Rock rooster in some farmer's yard.

We had another blow one day, but then life is full of disappointments. We came home to find the storm porch heaped high with fox pelts and though visions of sugar plums didn't dance in our head, fur coats sure did. Well, the same old story, we didn't get the coat but several well known flies have been seen wearing them.

No, you've never lived until you have lived with a fly tier for there isn't a dull moment! Poor Father sure deserves a lot of pity for he just doesn't know any better than to enjoy himself twenty-four hours a day—sixteen of them tying flies, thinking of the trout they will take and eight more dreaming of the big one that got away.

Yes . . . this is livin'!

Fly Tying III

(From Page 20)

simple once it is mastered. This diagram illustrates how a section from the quill of a right wing is formed. Cut section (A) and hold firmly in both hands as illustrated. Now move hands slightly in opposite directions. Next, hold firm by cut end (left hand) and gently stroke tip ends up between thumb and finger of right hand. Reverse the operation by holding the tip with the right hand and stroking in the opposite direction with the left. Repeat this operation until the tip ends are even as in (B). Fold section (B) longitudinally in the middle. Follow procedure under Diagram No. 23.

The Down Wing

The down wing is quite often troublesome for the beginner. After the body and hackling are finished, cut off hackle fibers along both sides (this is optional). Take wing for right side as in Diagram No. 25 and place on opposite side. Hold in place with index finger of left hand. The lower edge of wing should come just to bottom of the body. Take wing for left side and place it opposite, and even with, the one on right. Hold in place with thumb. (Note: For illustrative purposes, the left wing has been omitted. For its position, see Diagram No. 26).

Bring tying silk loosely up between thumb and wing, over top of wing and down between the wing and index finger, then up between thumb and wing. Close tips of thumb and finger. Hold firmly and tighten by pulling silk up as in Diagram No. 26. After you

have had some experience with this wing, you may find that you will be able to tie in this wing as described for the closed wing. I only suggested the preceding method because beginners usually have more success using it. There are many other styles of wings, but if one can tie those described in this article, he or she should have no trouble with the rest.

New Regulations for Pymatuning Lake

New experimental measures for managing the fishery resources of Pymatuning Lake announced jointly by the Pennsylvania Fish Commission and the Ohio Division of Wildlife. Major changes include an earlier opening of the walleye season and removal of creel limits on panfish. It is believed that the new measures will allow better utilization of the fish crop in the lake.

Pymatuning Lake is a boundary water between northwestern Pennsylvania and northeastern Ohio, covers a total area of over 15,000 acres and has a shoreline of 70 miles. The upper 2,500 acres of the lake is known as Pymatuning Sanctuary and is closed to fishing. In the main lake nearly 13,000 acres are open to public fishing—about 25 per cent being in Ohio and 75 per cent in Pennsylvania.

Biological investigations and creel census returns made by both states served as the basis for the new regulations. One of the outstanding findings was that the lake holds large populations of pan and coarse fish which are not being harvested by anglers. The lake is considered to be well adapted to walleyes; spawning of this species is successful in Pymatuning and occurs in April and early May.

Under the new regulations, which go into effect on Pymatuning Lake on May 30, 1953, the walleye (yellow pikeperch) season will open on Memorial Day rather than July 1. This will give fishermen the extra month of June for walleye fishing. Effective on the same date, creel limits will be removed from bluegills and other sunfishes, rock bass, yellow perch, bullheads and catfish, white bass, suckers and carp. Pennsylvania removed creel limits from crappies in 1952. There have been no changes in the regulations governing largemouth or smallmouth bass or muskellunge. For these species the season still opens on July 1. The daily limits of minnows (35) and frogs (25) are still retained in Pennsylvania. These changes apply only to Pymatuning Lake and not to any other Pennsylvania waters.

Plans to continue and expand management studies on the lake are being made. These will include tagging of several species of fish, test netting and creel censusing. To test the value of the experimental regulations, fishermen will be asked to cooperate by reporting their catches to conservation officers or boat livermen.

Value of Fish Markets

(From Page 21)

with fingerling bass. And he'd observed many happy sportsmen snaking those bass—full-grown now—into their landing nets.

Why, Hogan told himself, it was a natural set-up: you not only provided the missus with free food for the table, but you enjoyed healthful exercise out-of-doors while securing such free grub.

You know what's coming next, of course . . . Hogan bought himself a fly rod and reel. A creel. A pair of waders. Some flies. A tackle box. A license to fish with. The second day out he hung up badly on a back cast and had to invest in a new tapered line.

Then there was the slight matter of oil and gas for the car. And, when the fishing didn't prove quite so good in his immediate vicinity, as he'd expected, there were the additional expenses of food and lodging as he roamed further and further afield.

At season's end Hogan, the businessman, admitted to me that he'd become sadly disillusioned. His fish had cost him in excess of \$5 per pound. He could have done much better at the fish market, much better. So could I: over the same period my own take-home fish weight had cost nearly twice what his had. I didn't bother to tell him this, however. As I've indicated, he was trying to make a business of what should have been his pleasure. I doubt if he would have understood why I didn't feel cheated.

Consider another advantage of the fish market. A bunch of guys have been fishing all day without producing anything edible. They arrive home starved and ready for dinner. Ready for what?—steak? Lamb chops? Hamburger? Don't be silly. These guys want fish. Ever since lunch they have been mentally tasting of fish broiled on foil, basted with butter per-
haps, and sprinkled with a little
parsley and served golden
brown with a side of chopped
parsley . . .

And, whether you realize it or not, the often-frowned-upon fish market is providing you with a food which, pound for pound has a far greater nutritional value than any other meat (practically every known vitamin is found in fish).

Personally, I have never envied the

scale-splattered gent with the rolled up sleeves and blood-stained apron who hovers behind the counter. He works hard. He spends a couple hours prior to opening up for business each morning—and another hour after closing at night—in scrubbing clean his display counter and icing it up. Despite this, some suspicious female shopper will invariably stomp up to the glass and peer inside with the disdainful look you'd expect her to wear if she were inspecting a ripe cesspool.

As far as she is concerned every fish on display is "old." That is, out of water a whole day, maybe even two. She fails to realize, of course, that commercial fishing boats often operate so far from port that it takes them four or five days to get a catch back to the dock; that if the fish are kept properly iced this will make little difference to the quality. All she has to do is inspect the fish's gills, should she suspect it to be old. If the gills are dark brown, instead of bright red, it is old.

The artist who drew that now classic sketch of the woman shopper raising a mackerel to her nose while the exasperated vendor snarls "It's a fish, lady—not a rose!" really knew his fish markets.

Equally painful to the guy behind the counter are the "experts." Invariably they feel obligated to point out to everyone present in a loud voice the various species behind the glass—and invariably they confuse the next shopper, who points to a cod, saying "I'll take that sea bass."

The other day a Philadelphia market operator was confronted by a Jersey shopper who ordered a pound of shrimp, then insisted that they be filleted!

Then, too, it seems we shall always be confronted by that breed of "sportsman" who must catch 'em all in one day—selling the excess to the corner market to help defray his expenses. As Ernie Lyons, sage old Stuart (Florida) waterfront observer puts it: "The only difference between a sport fisherman and a commercial fisherman lies in the fact the commercial man doesn't bother to photograph his fish before he sells 'em."

Yes sir, it seems there is a definite place in this world for the fish market.

Club Officials Elected for 1953

Holmesburg Fish and Game Protective Assoc. Inc.

Elwood Kline, president; Titus Irons, vice pres.; Robert Adams, 2nd vice pres.; Edwin Y. Vache, Treasurer; Charles E. Wiley, Secretary. Directors chosen were: Frank Krebs, Milt MacBain, Kurt Silbers, Russ Cornelius and Sam Boswell.

Little Fishing Creek Rod and Gun Club, Millville

Monroe Smith, President, and LaRue Thomas, Secretary.

Orbisonia-Rockhill Sportsmens Assoc., Orbisonia

Guy C. Wilson, president; Charles Locke, treasurer; and Glenn R. Houck, secretary.

Daniel Boone Rod and Gun Club

George G. Hafer, president; Theodore Neff, vice president; David S. Levan, recording secretary; Leon Leinbach, financial secretary; Wayne Bortz, treasurer. Trustees are: W. Delbert Newman, George Griesemer and Park C. Boone.

Dormont-Mt. Lebanon Sportsmen's Club

Robert R. Terrick, president; Paul J. Devlin, vice president; Ralph R. Berry, secretary; William C. Knechtel, treasurer. Directors are: Charles Morris, Louis Beinhauer III, Wilson Barker, Milton D. Crane, A. C. Ramsay, Walter Suhm, Ross Shearer, Thomas Fulton, George Landefeld, Peter Krass, Lester Harper and Joseph Marisco.

Wants Emergence Table of Insects

Dear Sir:

Enclosed you will find check for years subscription to PENNSYLVANIA ANGLER. Last year in one of your issues you listed the Emergence Tables of various insects on trout streams. It seems I lost it and I was wondering if there is some way to get another such chart. I enjoy reading your magazine very much, being an ardent fisherman, the only thing is some months there is more about flowers and birds in the book than about fish. Too bad you couldn't print all the various trout flies and bass flies, color schemes such as color of body, hackle, wings, etc., I know this would be of keen interest to more people than myself.

J. M. FINKLER

Endicott, New York

For Mr. Finkler and other anglers making requests we shall reprint the Emergence Tables by Charles Wetzel in the April issue.

Dear Sir:

Please advise if my subscription to the ANGLER has expired. I think it a very fine magazine, have received it a number of years.

LaMAR TEXTER

Quakertown, Pa.

PENNSYLVANIA ANGLER

The Editor's Angle

Another Carp Bait Recipe

Dear Editor:

In answer to your request in the November issue for carp and catfish favorite baits I am enclosing a recipe for carp that I feel is second to none.

Take 1 cup white flour, 1 cup corn meal, 2 tablespoons molasses, 1 teaspoon glycerine. First, thoroughly mix flour and corn meal, then add molasses and glycerine and mix again. Add water, a teaspoon at a time, continuing to mix until mass is damp only. Do not add too much water. Next place in a double boiler, boil for 30 minutes with the lid on. Empty contents on sink or drainboard. The mixture must be worked with the hands for 15 to 20 minutes adding a sprinkle of water from time to time if needed. At end of this squeezing process you will have a ball of bait that is hard, not sticky, and will hold on the hook.

I can't guarantee you will catch carp, that depends on the angler's skill but I will guarantee plenty of hits if there are carp around. It may be necessary to moisten the bait when shaped to the hook. Now I've come across with a carp recipe, how about some of you fellows coming through with a good catfish bait that isn't too hard on the nose?

ROY CLEMONS

Philadelphia, Pa.

Appreciates Carp Recipe

Dear Sir:

Here's my \$2.00 for the PENNSYLVANIA ANGLER, and I hope I'm not too late to get the February edition sent me as I haven't missed a copy in about 7 years. Mere words cannot express my thanks to you for the effort you put into making the ANGLER so interesting on things that interest so many sportsmen. I appreciated the Carp story and bait recipe of John Majer of Portage, Pa.

Here's a pix of a carp I caught in the Neshominy creek at Newportville last September. I caught 6 all about the same size.

CHARLES F. SCHADE

Philadelphia, Pa.



SNAILS AHOY! Here in the U. S. A. few of us relish eating bird's nests soup, sea week and other peculiar items on the diet of other peoples throughout the world. But fishing for edible snails (*Helix pomatia*) does not meet the public demand in England and France nowadays, so the French are rearing these creatures for the table on special snail farms. The photo sent us by our London correspondent, R. D. Barrett-Lennard, shows a snail ridden by George Gaudin (a Frenchman who has been awarded a high decoration in France for boosting the edible snail market in England) in a carving which stands outside L'Escargot Inn, Greek street, London, where the snails are served. The snails which hibernate in the sea and are provided by nature with a means of living in water are able to survive equally well on land, thus presenting no special problem to the snail farmer. France recently placed this snail under the fish and game laws to prevent extinction.

Wants More Bush Drawings

Dear Editor:

Congratulations on such a fine magazine as THE PENNSYLVANIA ANGLER. I've read many fishing magazines but the ANGLER tops them all.

I really look forward to its interesting reading each month. Especially good are the fine stories and various scientific information concerning the finest gamester of them all . . . the Trout.

I think you have a really good idea concerning the photographs that are on each cover. The beautiful settings of outdoor Pennsylvania can't be beat. But I noticed something is missing . . . the fine wildlife illustrations of H. Bush. My fishing buddies and I always look keenly through each ANGLER for his drawings, many of which are beautiful enough to frame. The July 1952 back cover was a masterpiece of both drawing and printing. Here's hoping that we all see his work continuing in the ANGLER. And, don't forget those swell stories by Wm. Boyd and Thad Bukowski . . . they're really good, too.

With general exception to these few items very little could improve the ANGLER because its really tops now. Just continue the fine job you have been doing.

HARRY E. AGNOR, Jr.

Williamsport, Pa.

Good Angler Salesman

Dear Sir:

I think you have done a fine job of revamping the ANGLER and sincerely hope you will always keep it as it, generally speaking, has been in the years gone by: a bit of printed matter especially for

Pennsylvania anglers and most by Pennsylvania anglers.

I am unable to take part in many programs of the various conservation minded folks in our section of the state, but I do get a lot of pleasure out of handing copies of the ANGLER to fishermen whom I meet along the streams, if they do not know the ANGLER . . . the value of the information in each issue generally interests fishermen not acquainted with it.

ARTHUR R. JOHNSTON

Shippensburg, Pa.

Carp Bait Recipe

Dear Editor:

Here is a carp and catfish bait I have used for years. It is easily made and very effective, needs no cooking. Use whole wheat bread (I use 2 or 3 slices usually), soften the bread with pancake syrup and a little water. Work until you have a stiff dough that will remain on the hook. I use long shanked hooks, cover the entire hook with an oblong mass not too large for carp but larger for catfish. Usually by the time carp or catfish have swallowed the bait they have hooked themselves, especially carp since they suck in the bait.

MRS. AMY EDMONDS

Pittsburgh, Pa.

Wants Double Order

Dear Sir: Please make it a double order (2 years) of my favorite sports magazine! I've enjoyed countless hours of informative and pleasant reading. Keep up the good work! The articles and features are worth many times the subscription and the pictures are wonderful too.

JOHN DI SCIASCIO

Philadelphia, Pa.

V-Dams in Lehigh Only Eel Walls?

Dear Sir:

I refer to Don Shiner's article in the January, 1953 issue of THE PENNSYLVANIA ANGLER entitled, OLD EEL WALLS. There are vestiges of the V-shaped stone dams in the Lehigh River and these have been there ever since I was a boy more than 60 years ago. I believe they were there when my father was a boy, and he told me they were the remains of the walls built by the Indians when they fished the Lehigh for their winter supply of shad . . . and I have always regarded them as such. I sincerely hope I must not change my ideas of these old stone walls in the Lehigh and regard them as nothing more than fairly recent devices built by local eel fishermen. Perhaps you can have someone help me out on this?

D. G. WILLIAMS

Allentown, Pa.

It's very possible the V-shaped dams of the Lehigh are all you have been led to believe, Mr. Williams, but we will hereby ask our readers to write the Editor giving their observations and sources of history on these dams. Replies will be published in a future issue.

Interested in Commission's Work

Dear Sir:

Enclosed is one dollar for year's subscription to THE PENNSYLVANIA ANGLER. I enjoy your magazine very much except for the articles on moths, birds, flowers and plants. If I wanted to read about these things I'd buy a nature study book, not a fishing magazine, although articles about trout stream insects are read and re-read. I am very much interested in the Commission's work and may seek a job with them when I finish college. I am especially interested in stream work such as: stocking, improvement, surveys, etc. Let's have some articles on something beneficial like stream improvement.

JOHN BLACK

Hershey, Pa.

We have a wide cross section of readers from the small fry in our public schools to the learned men and women in universities, libraries and scientific institutions. To constantly bring something of interest to all through the pages of the PENNSYLVANIA ANGLER is often a difficult, discouraging job for the editor. But we feel we owe Mr. Black and other readers an explanation.

The PENNSYLVANIA ANGLER is essentially and fundamentally seeking to bring a conservation message to all who will read, ponder and become inspired to join in the struggle to preserve not only the sport of angling but everything that is clean and beautiful in our Outdoor Pennsylvania.

We are vitally interested in the wise use, conservation and management of not only fish and fishing but the loveliest wildflower along a meadow brook, the great willow along the bank of a stream, the intimate whistle of the bobwhite, the delightful song of the spring peeper in the evening. The multitude of creatures of wood, field

and stream directly and indirectly add much to the pleasure and joy of the angler for do they not gladden his work-weary eye; give sweet melody and song to soothe his ear still ringing with the din of city noise; provide cool, refreshing shade to rest and restore his tired, sagging spirit?

So it is all things of the outdoors serves man by conserving his reason, his balance, restoring his self respect and a respect for the lives of others, yes, even for the tiny life of a fish. It is here a man must learn the true meaning of sportsmanship, restrain his lust to kill just for the sake of killing.

There is no honor in how large, how many fish we kill but the moral code of ethics in sportsmanship as we know it today, tolerates a kill only by the most skillful means. This does not imply an angler fitted with only an old rod, a blob of worms and a 12-ounce sinker is a brute while the skilled dry fly fisherman is a true sportsman and kindly soul for there are many instances to support the opposite.

When the angler comes to respect the life of a trout, bass or of any creature of the outdoors he has gained much in his search for truth in sportsmanship. When he has learned to hold high in the great scheme of Nature the *least* of all the living things he will hold in higher esteem and respect the lives of his fellow men.—THE EDITOR.

The following letter addressed to Mr. Keen Buss, Fishery Biologist, Penna. Fish Commission is from:

Mr. Fred C. Ralph of Erie, Pennsylvania, who has probably caught as many snapping turtles as any man in the state, comments on the article, "The Snapping Turtle," which appeared in the PENNSYLVANIA ANGLER of January 1953.

The comments are as follows:

"I read your article in the ANGLER in regard to the snapping turtle and it is the best article I ever read about the snapper. Most writers think the snapper should be exterminated. Some people also think that the snapper doesn't eat anything but meat and fish. I have dressed a good many snappers and the only ones I found with only meat and fish in their stomachs were penned up and fed only meat and fish. Every one that I dressed that had been feeding natural had more vegetation in the stomach than anything else. I think the snapper has his place in the picture the same as all other wildlife, including the human being.

"Another thing I noticed with penned-up snappers—when fed only fish or meat and no vegetation, the food doesn't digest right and gets real hard in their intestines. Of course, when there are too many snappers in a pond for the size of the pond, then they should be thinned down some; same as too many fox, weasels, owls, etc.

"When the worst predator (the human being) does his work, he upsets the applecart and nature can't right it fast enough to keep up with him . .

"I suppose you have noticed that the female has a shorter tail than the male snapper."

Wants Turtle Recipe

Dear Sir:

Would appreciate more information about Snapping Turtle. Would it be possible for Mr. Buss and Mr. Burns to get together and tell me how to prepare Mr. Snapper from time he is caught until he reaches edible stage? Thoroughly enjoy THE ANGLER, best wishes for your continued success as Editor.

EDITH C. KENNEDY

Philadelphia, Pa.

Recipe for Dressing, Preparing Turtles

Following information, in reply to Mrs. Kennedy's request, comes from Fred C. Ralph of the Fred C. Ralph Fisheries, Producers of Fresh Water Fish, Erie, Pa.:

We use turtles for soup but fried turtle is really a delicacy. For frying, take a small turtle that weights 4 to 8 pounds (live weight), cut off the head, also the feet at the joint, then take off the bottom plate or shell. There is a joint on each side that a knife will cut through. Then skin the legs, neck and tail and unjoint them from the top shell. There is also a strip of meat in the top of shell that should be saved. Trim off all fat, then fry the meat in butter until brown. Then add water, cover the pan and let simmer until tender. It usually takes an hour or longer. Season same as you would for rabbit or any other meat. Some people boil the meat before frying. It is also good that way. Some people like the liver and some do not. If you save the liver, be careful not to break the gall as it is bitter.

To make soup, dress turtle the same as for frying and I am enclosing my wife's recipe for turtle soup. Some people dress a turtle like a pig is dressed, by scalding and scraping and they also put the shell into the soup but it doesn't sound very appetizing to me.

Mrs. Ralph's Special Turtle Soup

Cut dressed turtle at joints and cook in salted water and onion and a few whole cloves. When real tender and well done, drain the broth off. Remove all meat from bones and cut into small pieces and put back in the liquid. Grind vegetables and add some tomato juice. Put all together and cook. Add a little rice or barley. Keep plenty of water on vegetables to prevent scorching. When about done, mix a little flour and butter together and add to soup. Season to taste. Sprinkle in a little cinnamon and serve.

Wants Line Test Defined

Dear Sir:

I use the streams of this great state and also am a subscriber to the *ANGLER*. Much I have learned from this magazine and from fishermen of the commonwealth.

Now I would like to request an official decision on how "test weight" of our lines are determined, to put a stop to our arguments at work.

EDMUND ROYALSKI

Philadelphia, Pa.

According to Mr. Schuyler's article, Lines about Lines, appearing in January and February issues, "pounds test" indicates the number of pounds strain the line will withstand on a *direct pull*.

Dear Sir:

Enclosed is \$1 for renewal to *THE PENNSYLVANIA ANGLER*, in my category, the finest fishing magazine printed. Even though I am but 17 years old with only 3 years fishing experience I am now more acquainted with the sport than many "old timers" in my neighborhood. *THE PENNSYLVANIA ANGLER* was an important factor in this acquaintance.

THOMAS WALSH

Scranton, Pa.



Allentown Call-Chronicle photo
WHOPPER—Robert Quier, 3306 Capital St., Allentown R. 2, hooked this 22-inch-long brown trout along the Lehigh River last season below Allentown after a half hour battle. The young angler caught his four and a half pound prize fish with night crawlers and a casting rod, but used no net. Bob took the fish to a taxidermist to have it mounted immediately after the picture was taken.



Bobby May, aged 10, Verona, Pa. caught this 27 inch pike in Allegheny river near Franklin last season on a plug.

Soldier Doesn't Mind Paying More

Dear Sir:

My check for \$1 is enclosed for the *PENNSYLVANIA ANGLER* subscription. I was wondering when you'd raise the ante a bit. No one could possibly object to paying eight cents a copy for what you give us. Stick to your guns on conservation. Along with other phases of good sportsmanship, lowered numerical limits, increased minimum size limits, we can perhaps find a solution to improved fishing in the future.

FIRST LT. FRED JOHNSON

Somewhere in Korea

In the

PENNSYLVANIA ANGLER

15 Years Ago

Recent marooning of fishermen story appearing in local papers is a reminiscence of an occurrence reported by the March 1938 issue of the *PENNSYLVANIA ANGLER*: "Fishing Lake Erie, a bit of bad luck overtook Antony Pakela who was doing just fine, fortified with a two-gallon jug of cider. The gale struck him and started him across the bay, cider, fishing tackle and all. Suddenly he came to a crack in the ice about 3 feet wide, but by flattening himself out he managed to negotiate this crack and reached shore in safety, but the cider was a total loss. It went through the crack and to the bottom. Mr. Pakela was blown more than one mile across the ice. Both his elbows and knees were bare, his clothing and boots worn through during his mad ride across the bay ice. With water dripping from the seat of his pants and all parts of his clothing, he presented a sorry sight.

During the same gale, "Peggy" Winkler, rightly named, because he is the owner of a genuine peg leg, had a slight advantage over some of the other fishermen, as when the wind started to move him across the bay, he would come to holes in the ice, cut to fish through, and stick his peg leg and hold fast until the gust of wind passed, finally made shore in safety.

A dean of feminine disciples of Izaak Walton in Pennsylvania, 87-year old Sallie Becker of Terre Hill, Lancaster county, purchased her 1938 fishing license in preparation for another season astream.

Veteran Angler Gets New Tricks

Dear Editor:

I enclose \$1 to renew my *ANGLER* subscription. I sure do not want to be without it. I am 72 years of age (not old) and I guess I can fish with any of the fellows but I get a lot of new tricks from the *ANGLER* and do enjoy reading about other anglers.

CHAS. O. MYERS

Watsontown, Pa.

Mrs. Lemon Fresch, South Fork, Pa. caught this 23¾ inch trout last season on a streamer made by Mr. Fresch.



300 persons attended the 43rd annual banquet of the Montgomery County Fish, Game and Forestry Association at the Valley Forge Hotel on January 29, 1938. Ozark Ripley, famous guide, outdoor writer was the speaker.

The Camp and Trail Club held a dinner at the Bellevue-Stratford on January 28, 1938 and marked a drive to enforce the new anti-stream pollution law passed by the legislature. Judge Grover C. Ladner addressed the sportsmen.

Fish Commissioner Harry E. Weber advanced a plan of planting willow trees for flood control and beautification of Pennsylvania streams and other inland waters.

10 Years Ago

George M. Gaul was elected President of the Dover Fishing Club of Philadelphia, reported the March 1943 issue of the *PENNSYLVANIA ANGLER*.

Olin Oberrender of South Street, Free-land, Pa., caught a 6 pound, 7¼ oz. 25 inch bass while fishing the Susquehanna at Meshoppen on a cold November day. The fish leaped at Oberrender's plug but missed and landed on the crust of shore ice. Oberrender used his landing net to catch the fish but when he put his weight on the ice, it broke and he fell into the water. However, he held the netted fish and said it was well worth the ducking. He suffered no ill effects from the wetting and after drying his clothes, returned home.

Forty-five members of eight clubs of The Tioga County Consolidated Sportsmen's Association voted a donation of \$50 to the U.S.O. and the clubs were to subscribe to leading game and fish publications to be sent to Tioga county men in the armed forces.

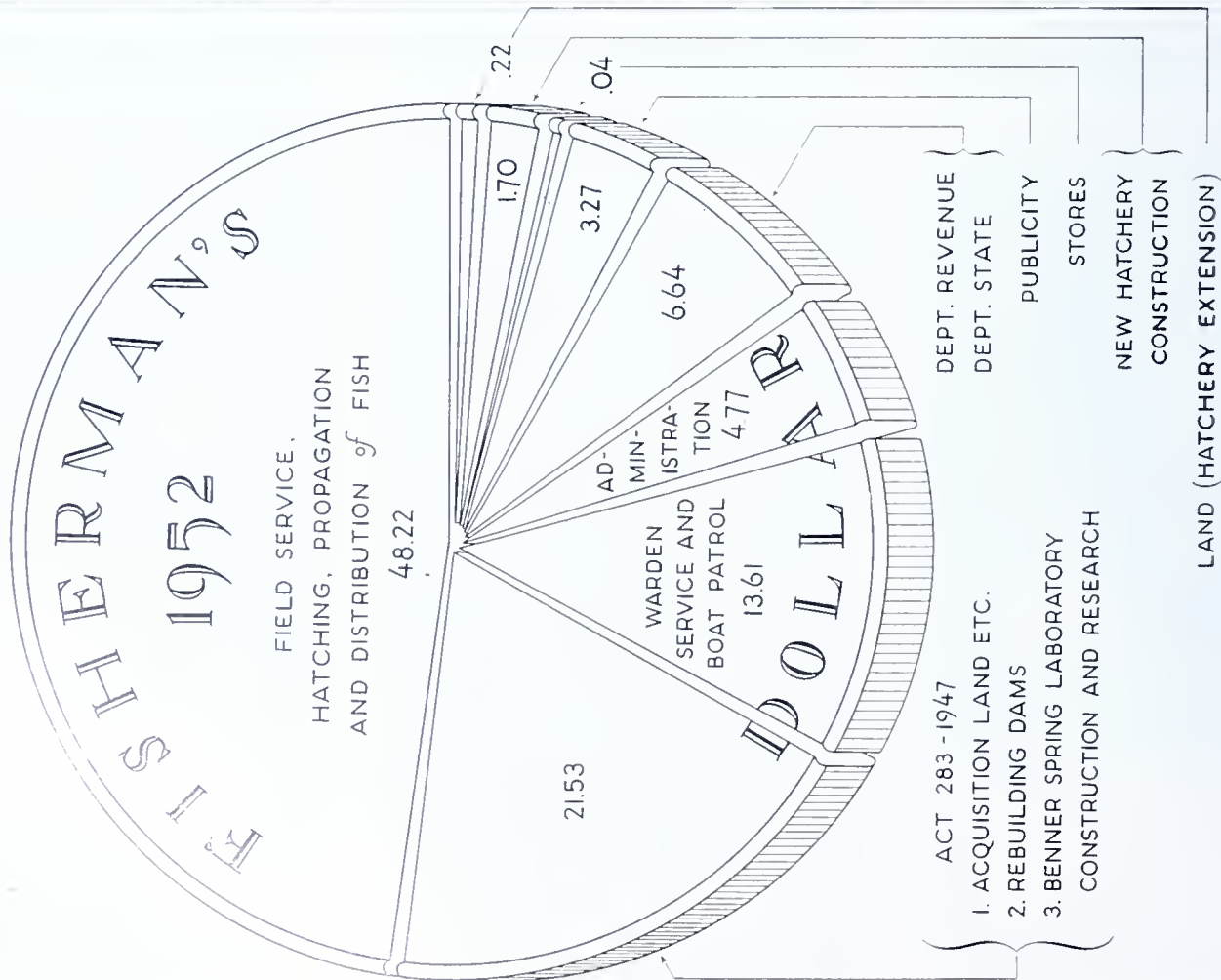
C. A. Martin was elected president of the Springdale District Sportsmen's Association.

COMMONWEALTH OF PENNSYLVANIA
PENNSYLVANIA FISH COMMISSION

Harrisburg
C. A. FRENCH
Executive Director

Fish Stocked in the Waters of Pennsylvania—1952

Species	Approx. Size	Number	Total
Brook, Brown and			
Rainbow Trout	7" to 20"	2,325,028	
Black Bass	1" to 12"	510,842	
Catfish	5" to 12"	361,510	
Sunfish	3" to 8"	363,575	
Frogs (Embryo)		163,460	
Carp	10" to 20"	43,480	
Yellow Perch	Adult	174,694	
Minnows	1½" to 6"	123,400	
Pickrel	7" to 18"	1,337	
Calico Bass	7" to 11"	12,400	
Pike Perch	Adult	67	
Suckers	2" to 5"	179,954	
Goldfish		40	4,259,787
<i>Fry and Fingerling</i>			
Trout	Fingerling	3,214,450	
Yellow Perch	Fry	288,500,000	
Pike Perch	Fry	32,000,000	
Smelt		800	
White Fish	Fry	6,000,000	329,715,250
Grand Total			333,975,037



FINANCIAL STATEMENT PENNSYLVANIA FISH COMMISSION CALENDAR YEAR 1952

BALANCE—January 1, 1952:

Cash	\$ 1,200,089.90
U S. Treasury Certificates	109,000.00
	<u>\$ 1,309,089.90</u>

RECEIPTS—1952

Resident Fishing Licenses	\$ 1,383,439.12
Non Resident Fishing Licenses	66,875.21
Tourist's Fishing Licenses	20,741.90
Eel Chute Licenses	20.00
Lake Erie Licenses	3,515.00
Commercial Hatchery Licenses	2,455.00
Motor Boat Licenses	64,524.50
Fish Law Fines	26,085.75
Motor Boat Fines	1,960.25
Contributions for Restocking Streams	21,800.00
Sale of Publications	12,201.15
Sale of Unserviceable Property	63.68
Interest	12,560.39
Refund not Credited to Allocation	46.60
Miscellaneous	143.90
	<u>1,616,432.45</u>
Total Funds Available	<u>\$ 2,925,522.35</u>

EXPENDITURES—1952

ADMINISTRATION

Salaries	\$41,896.75
Wages	2,125.70
Fees	120.50
Printing, Binding & Stationery	32,515.34
Materials & Supplies	637.19
Traveling Expenses	1,449.54
Motor Vehicle Supplies & Repair	584.99
Freight, Express & Cartage	70.13
Postage	1,614.65
Telephone & Telegraph	1,545.40
Newspaper Advertising & Notices	1.88
Repairs	90.86
Rent of Real Estate	21.79
Insurance, Surety & Fidelity Bonds	281.96
Other Maintenance Services	137.32
Motor Vehicles	2,138.00
Equipment & Machinery	2,092.06
Total	<u>\$87,324.06</u>

WARDEN SERVICE

Salaries	\$145,700.35
Wages	21,986.07
Fees	55.00
Printing, Binding & Stationery	275.60
Materials & Supplies	1,703.04
Traveling Expenses	72,313.81
Telephone & Telegraph	4,774.67
Repairs	18.80
Rent of Real Estate	36.00
Insurance, Surety & Fidelity Bonds	755.79
Other Maintenance Services & Expenses	2.00
Equipment & Machinery	607.61
Total	<u>\$248,228.74</u>

BOAT PATROL SERVICE

Materials & Supplies	\$140.83
Insurance, Surety & Fidelity Bonds	339.03
Total	<u>\$479.86</u>

FIELD SERVICE

Salaries	\$18,420.00
Wages	6,780.64
Printing, Binding & Stationery	601.39
Materials & Supplies	2,478.45
Traveling Expenses	2,918.62
Motor Vehicle Supplies & Repair	1,708.78
Freight, Express & Cartage	3.91
Telephone & Telegraph	2,046.16
Light, Heat, Power, Water & Fuel	285.43
Repairs	22.10
Insurance, Surety & Fidelity Bonds	198.84
Motor Vehicles	5,107.63
Equipment & Machinery	1,213.87
Total	<u>41,785.82</u>

HATCHING SERVICE

Salaries	\$218,792.50
Wages	231,886.24
Fees	77.00
Printing, Binding & Stationery	793.98
Food & Forage	235,561.45
Materials & Supplies	55,991.36
Traveling Expenses	11,243.79
Motor Vehicle Supplies & Repairs	26,556.71
Freight, Express & Cartage	69.64
Postage	1,440.20
Telephone & Telegraph	3,483.88
Light, Heat, Power, Water & Fuel	34,373.94
Repairs	1,150.86
Rent of Real Estate	2,872.50
Rent of Equipment	1,064.89
Insurance, Surety & Fidelity Bonds	2,854.37
Motor Vehicles	7,828.14
Equipment & Machinery	4,224.78
Total	<u>\$840,266.23</u>

EDUCATION & PUBLICITY

Salaries	\$8,922.00
Wages	3,033.13
Fees	7,731.81
Printing, Binding & Stationery	36,919.81
Materials & Supplies	297.02
Traveling Expenses	1,456.61
Postage	931.35
Repairs	223.30
Rent of Real Estate	150.00
Insurance, Surety & Fidelity Bonds	35.69
Total	<u>\$59,700.72</u>

CONSTRUCTION (PYMATUNING)

Wages	\$21,554.70
Materials & Supplies	6,844.06
Motor Vehicle Supplies & Repair	1,190.98
Repairs	167.36
Rent of Equipment	1,412.00
Insurance, Surety & Fidelity Bonds	58.72
Total	<u>\$31,227.82</u>

REFUNDS & REPAYMENTS OF RECEIPTS

	<u>\$235.25</u>
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STORES

Materials & Supplies	\$705.15
Motor Vehicle Supplies	337.15
Equipment & Machinery	410.37
Total	<u>\$631.93</u>

LAND PURCHASED (Hatchery Extension)

	<u>\$4,000.00</u>
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PENNSYLVANIA DEPARTMENT OF REVENUE

Bureau of Miscellaneous Licenses)	<u>\$91,942.24</u>
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PENNSYLVANIA DEPARTMENT OF STATE

(State Employees' Retirement Board)	<u>\$29,563.50</u>
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(Expenditures made in accordance with Act No. 283—1947)

Benner Spring Laboratory Construction and Research

Salaries	\$8,898.00
Wages	99,830.44
Printing, Binding & Stationery	860.73
Materials & Supplies	66,107.95
Traveling Expenses	16,412.75
Motor Vehicle Supplies & Repair	2,582.37
Freight, Express & Cartage	6.14
Telephone & Telegraph	751.00
Light, Heat, Power, Water & Fuel	1,919.89
Repairs	266.28
Rent of Real Estate	117.00
Rent of Equipment	25,590.94
Insurance, Surety & Fidelity Bonds	382.92
Motor Vehicles	3,688.76
Equipment & Machinery	10,698.47
Total	<u>\$238,113.64</u>

ACQUISITION OF LAND & FISHING WATERS

Wages	\$6,486.03
Fees	4,351.64
Printing, Binding & Stationery	91.86
Materials & Supplies	103.16
Traveling Expenses	892.72
Motor Vehicle Supplies & Repair	360.23
Telephone & Telegraph	252.26
Rent of Equipment	411.25
Insurance, Surety & Fidelity Bonds	48.37
Equipment & Machinery	84.78
Land	9,150.00
Easements	8,148.30
Contracted Construction	75,249.00
Total	<u>\$105,629.60</u>

REBUILDING TORN OUT DAMS

Fees	\$1,331.63
Contracted Construction	48,731.95
Total	<u>\$50,063.58</u>

\$1,829,192.99

BALANCE—December 31, 1952

During the calendar year 1952, \$109,000.00 U. S. Treasury Certificates were redeemed.

Act No. 283—1947, provides that effective the first day of January 1948, twenty-five cents (25c) from each resident fishing license fee shall be used exclusively for (I) the acquisition of land and fishing waters (II) The rebuilding of torn out dams, and (III) The study of problems related to better fishing. Expenditures during the calendar year are shown in detail above.

STATEMENT OF EARMARKED FUND

Accrued		
1948	\$147,862.50	
1949	154,810.80	
1950	154,654.39	
1951	160,672.80	
1952	172,929.89	
	<u>\$790,930.38</u>	
Expended		
1948	21,358.83	
1949	34,435.89	
1950	69,131.37	
1951	133,751.28	
1952	393,806.82	
	<u>\$652,484.19</u>	
Balance December 31, 1952		<u>\$138,446.19</u>





8.31
1953
APRIL

PENNSYLVANIA ANGLER

1953

CATCHING TROUT VIA CAMERA • ART OF MINNOW AND WORM FISHING

SPINNING • TIGHT LINES? • FLY PATTERNS • LAND THAT BIG FISH

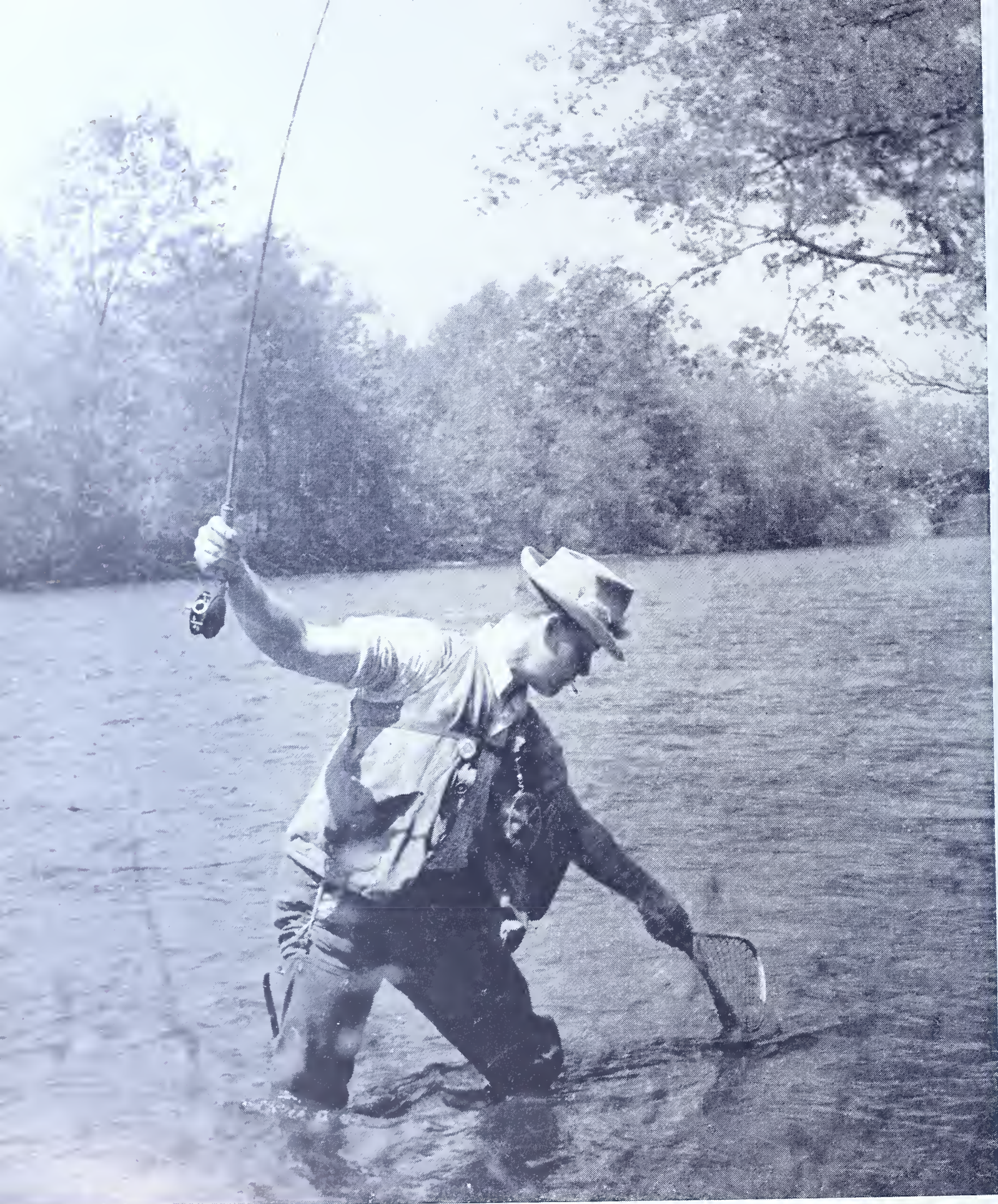


PHOTO BY DON SHINER

THE APRIL 15TH STORY IN PENNSYLVANIA; . . . beautiful, clear, fast-flowing trout waters, the pumping bend of a rod, the net held at ready as finny "royalty" comes to the end of the trail. There's something about trouting that digs into the deepest marrow of bone, jangles every nerve, knots every muscle, brings a climax to every trout tale ever told! ANGLERS ARE REMINDED THE LEGAL LIMIT OF TROUT IS EIGHT (8).

COMMONWEALTH OF PENNSYLVANIA

HON. JOHN S. FINE
GOVERNOR

★

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Chief Div. of Land and Water Acquisition

GEORGE H. GORDON

Official Photographer

THOMAS F. O'HARA

Construction Engineer

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Merrill Lillie—Corry & Union City

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T. J. Dingle—Huntsdale

Howard Fox—Linesville

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Chief Enforcement Officer

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PENNSYLVANIA ANGLER

Vol. 22, No. 4

APRIL, 1953

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THE COVER . . . BIG BROOK
TROUT smashing a fly answers every
dream of every angler. Photo by
W. T. Davidson, Warren, Pa., origin-
ally appeared in "National Geo-
graphic Magazine."

✻ ✻ ✻

BACK COVER — "THIEVES" — Photo by
Ewing Galloway—New York ..



George W. Forrest, Editor

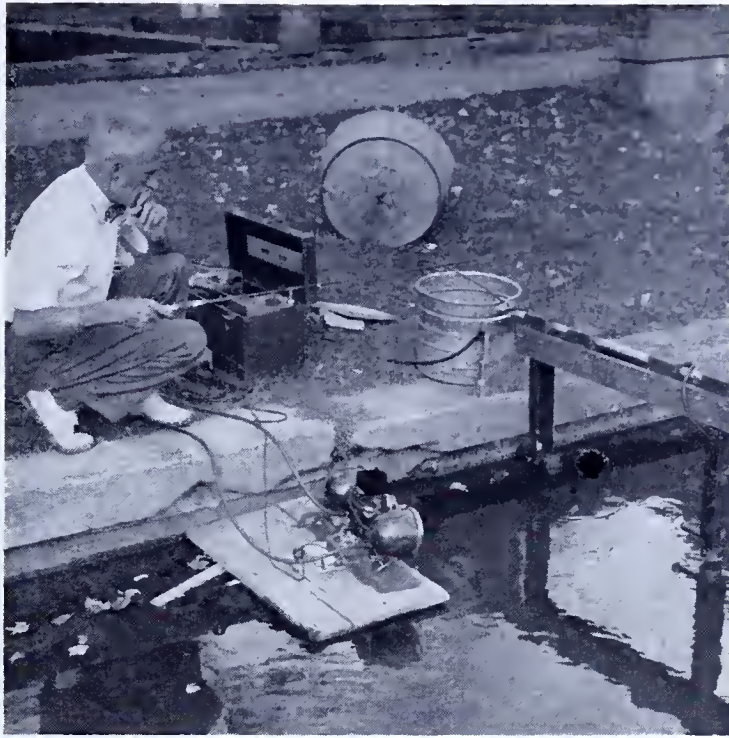
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HIT AND RUN as two big brook trout compete for the fly. It's only a matter of time what might happen to any Pennsylvania angler after seeing this April 15.



Catching Trout with a Camera

Photos by W. T. Davidson & by courtesy of National Geographic Society.

A GLIMPSE of the beautiful state fish hatchery from Route 6 near Corry, Pennsylvania, led to speculation about the possibilities of a few interesting pictures. Query at the office developed no photographic restrictions and an offer to help in every way possible.

After looking the situation over there seemed to be an excellent opportunity to use a photographic electric eye thought up by the writer and perfected by Commander W. S. Heston, an electronic engineer.

When the apparatus was being set up, the visiting tourists gathered around only to be disappointed when the trout refused to cooperate. At this point Mr. Merrill Lillie, superintendent of the hatchery, offered to help, took over the short steel rod with its dehooked fly and bang—every time the fly touched the water a fourteen inch beauty took it down and swirled away. This continued until Mr. Lillie's wrist began to tire whereupon he returned the rod, with his quiet smile, saying, "Mr. Davidson, this is the most fun I have ever had here in the sixteen years I have run this hatchery."

Later in the day the writer tried again as you see him in the picture snapped by Mr. Lind, trying to figure it out, surrounded by the photographic, stroboscopic and electrical equipment with the fly suspended almost in the path of the light beam which, when interrupted by a jumping fish, would catch him on film.

A split second later the first picture was in the camera, others following in quick succession

It is equally exciting to catch them with a kodak: If you try it, be sure to keep your lens dry!

CLEAN MISS, this brookie looks much like he's saying "Doggone" or stronger. Those spots on side of fish are drops of water not lesions or holes in the skin. Can you make out that other big lunger at lower right?



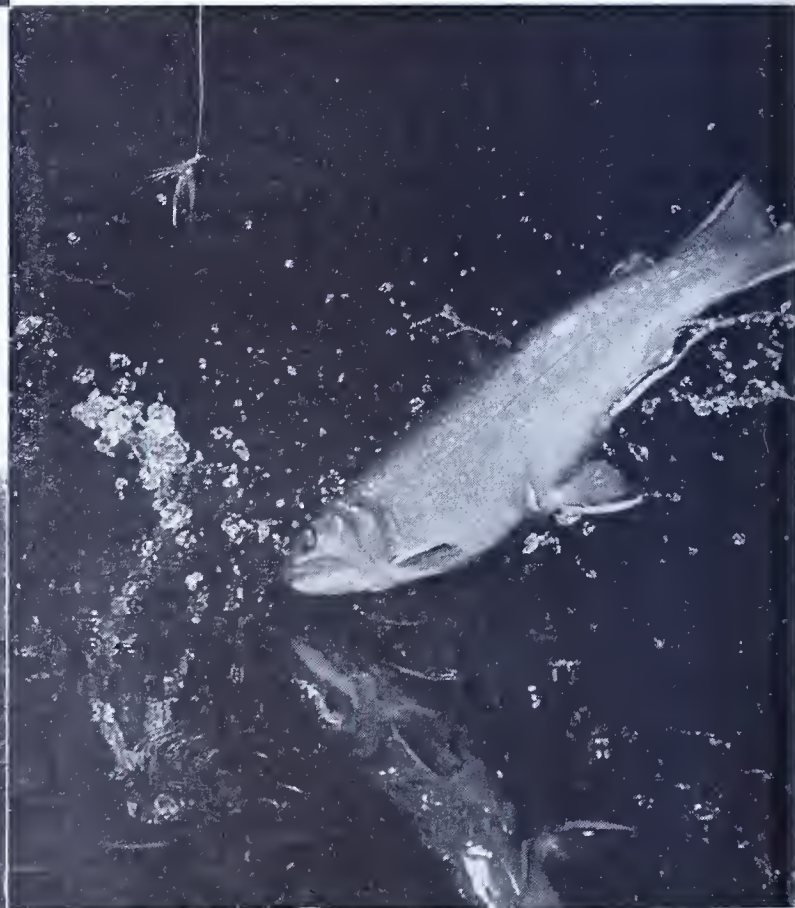


TRAIL OF DIAMONDS is left behind as trout makes 190-degree bank after a bust at the fly. This is perhaps one of the most remarkable photographs of a trout ever put on film.



BIG BEND brings out agility with which a big trout can take to the air, make sharp right angle turn.

BELLY GUTTER doesn't worry Mr. Brookie too much as he prepares to skid back into his element.

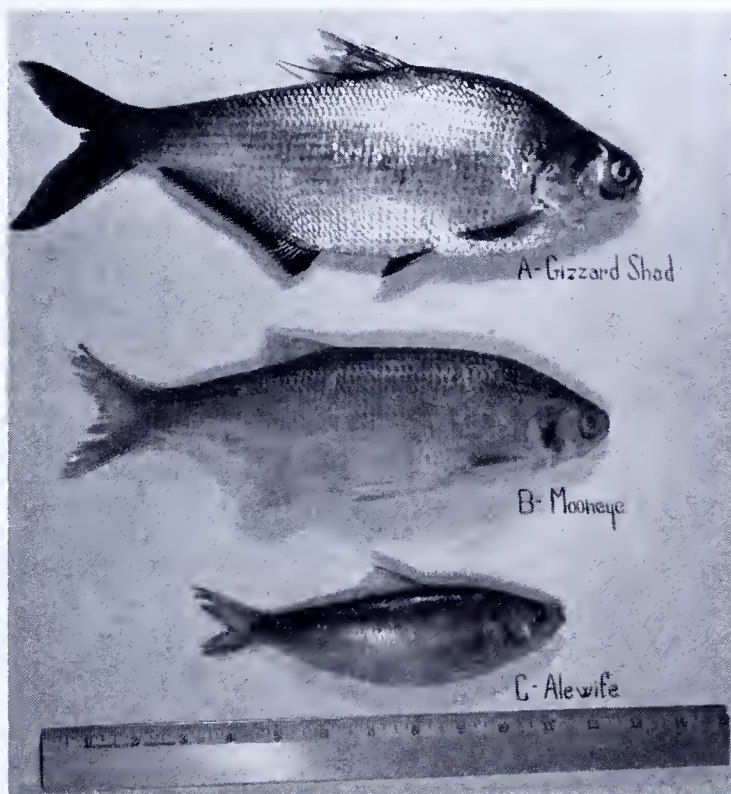


NEVER STOP TRYING, out he comes again and another miss. Head and tail of two other finny gentlemen can be seen at bottom of photo. Do trout have some cuss words at their command much like the angler when he misses?

Mooneye? . . . Shad? . . . Sawbelly?

By ALFRED LARSEN

Fishery Biologist, Pennsylvania Fish Commission



A. Gizzard Shad: greatly elongated last dorsal ray, saw-toothed scales on belly, lateral line absent.

B. Mooneye: large eye, no saw-toothed scales on belly, lateral line present.

C. Alewife: lower jaw projecting, saw-toothed scales on belly, lateral line absent.

IN the waters of Lake Erie are several species of fish which are termed "Mooneyes," "Shad," or "Sawbellies" by most local fishermen—commercial and sport fishermen alike. The name mooneye, although being the proper name for one of the subject species, is generally the most common name used in reference to these fish as a group. Actually there are three separate species and it is the purpose of this brief article to acquaint those interested with the differences between the fishes involved, namely, the Gizzard Shad (*Dorosoma cepedianum*), Mooneye (*Hiodon tergisus*), and the Alewife (*Pomolobus pseudoharengus*).

These fish are similar in general appearance in that they are silver in color and have slab-sided bodies with a narrow belly. The Alewife and the Gizzard Shad belong

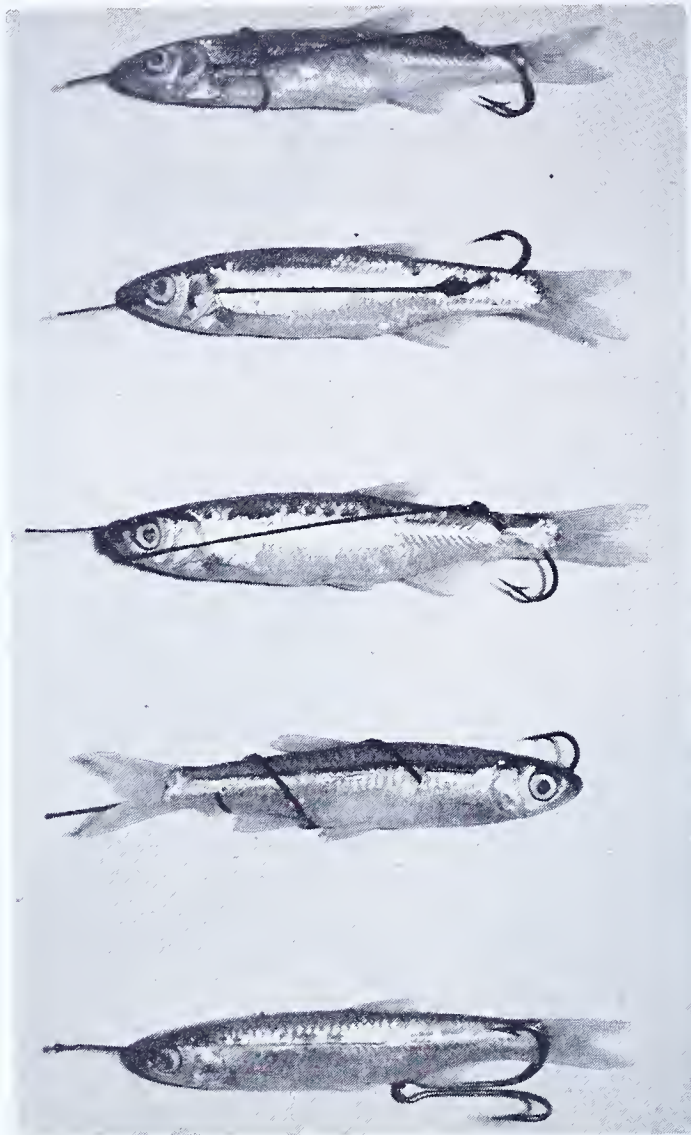
to the Herring family (Clupeidae) while the Mooneye belongs to the family Hiodontidae.

The Gizzard Shad occurs in large numbers in the southern portion of the Great Lakes Drainage and is particularly abundant in the waters of Lake Erie. It is best identified by its greatly elongated last dorsal ray which may sometimes be broken off and the presence of strong spiny scutes or scales on the midline of the belly—similar in appearance and touch to the edge of a saw. It has no lateral line and no teeth. The thick walled muscular stomach of the gizzard shad resembles the gizzard of a bird—hence its name "gizzard shad." This species attains a length of over 12 inches and specimens measuring 19 inches and weighing 3 lbs. are not uncommon. Young gizzard shad feed on small

(Continued on page 24)

MINNOW FISHING for trout

By DON SHINER



LARGE trout, those that go beyond the 18-inch mark on yard sticks, are heavy bottom feeders and are constantly on the prowl for big, tempting morsels of food. These fish expend more energy when rising for a tiny May fly than they derive from the insect, hence want their food in mouth filling portions, have their eyes constantly alerted for passing minnows. Occasionally one of these large trout can be tempted to rise for a fly, but more often the big lunkers are creeled by minnow fishermen.

Not so surprising, there are more big trout in the streams throughout Pennsylvania than one would surmise. Minnow fishermen usually find these lunkers and rack up more trophy fish to their credit. It would therefore pay dividends to other anglers, if they would become familiar with minnow fishing and learn the fundamentals on how to take these tackle-loving trout with this natural bait.

But there is more to minnow fishing

than merely placing a minnow on a hook, tossing it into some pool to await some wandering fish happening along and swallow the bait, hook, line and sinker. According to the men successful at this type of angling—those who rack up the greatest number of big trout catches year after year—the technique of minnow fishing is a science in itself. Kenny Sands, a well known and honored fisherman in Columbia County and a minnow fisherman for years, says this type of angling involves more work than do other methods but the size of fish caught and the battle these larger trout give more than compensates for the labor.

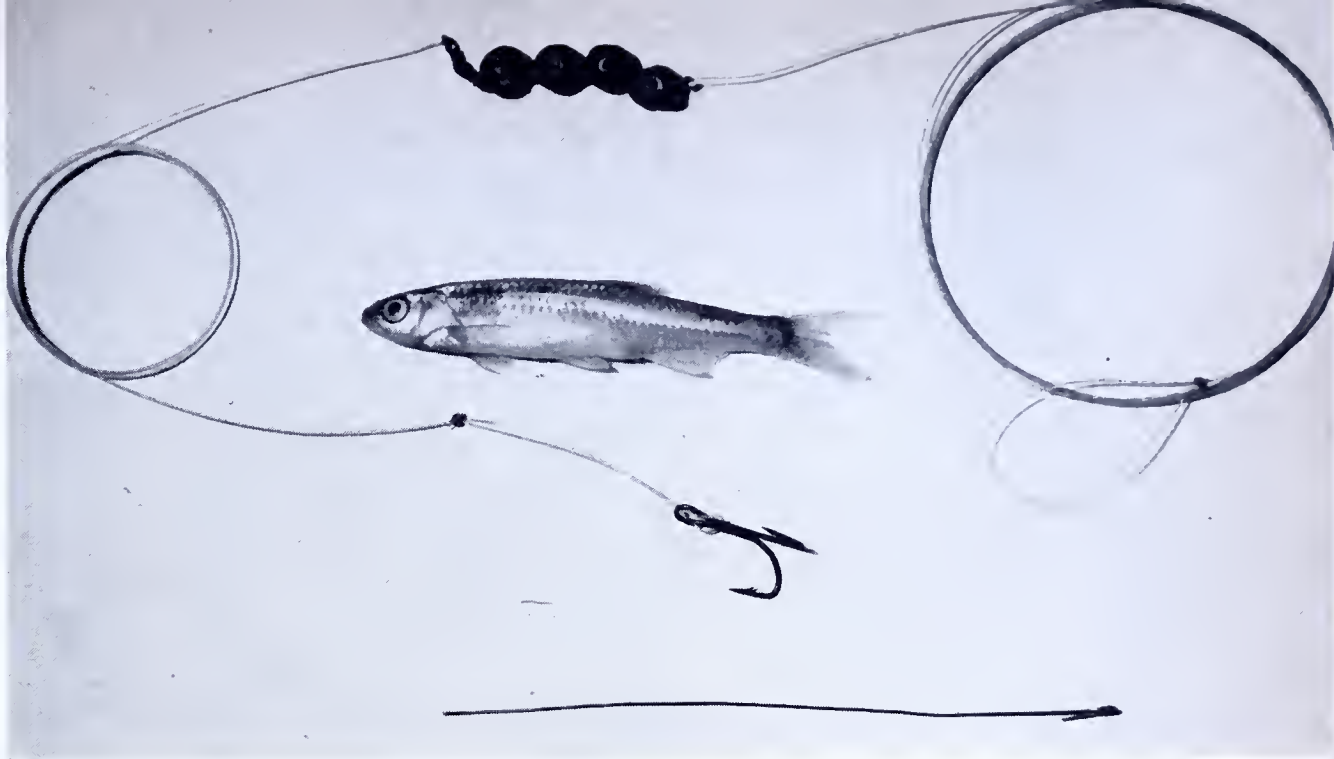
Minnow fishing first of all calls for heavy tackle that is capable of withstanding hard usage. Tubular steel or stiff bamboo fly rods or spinning rods having "backbone" stand up best. The line should be as thin as possible (preferably an enameled level fly line for a fly rod or the braided or mono-

Practical methods of hooking minnows.

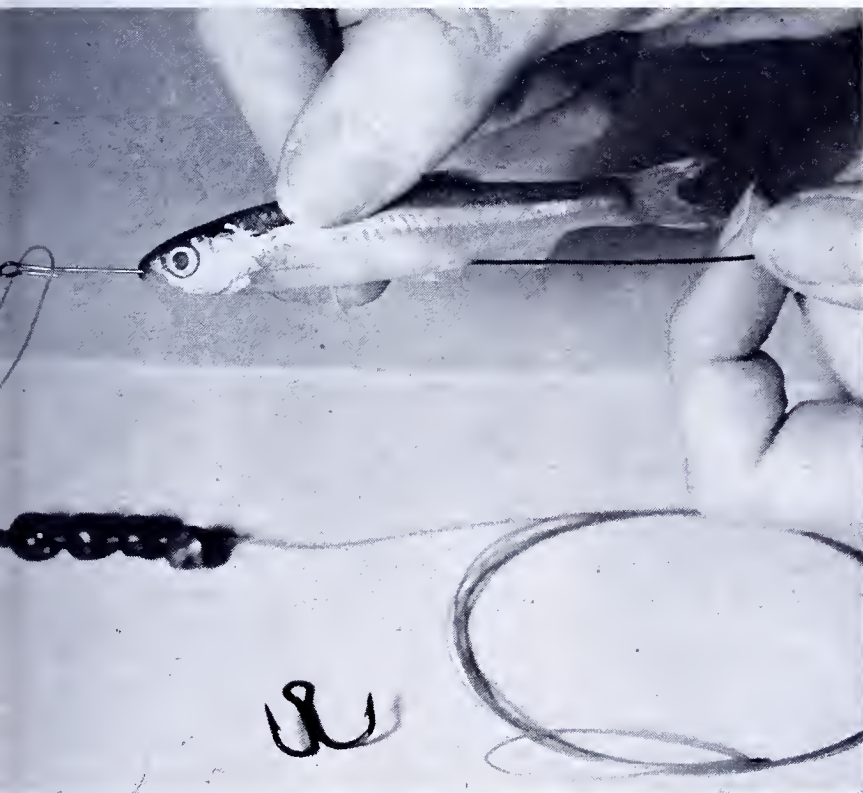
1. Top shows line through mouth and looped around body with hook inserted near tail.
2. Line is inserted through mouth and out gill, with hook imbedded in tail.
3. Leader is sewed through mouth and lips, then hook placed in tail.
4. Minnow is sewed on leader in reverse style and hook placed through head.
5. Line is inserted internally through mouth to tail with double hook in place.

filament for spinning) but strong enough to withstand the strain of being pulled loose from the rocky bottom or underwater debris when the sinker or hook becomes fouled. Long leaders are necessary to make the connection between line and minnow as inconspicuous as possible. They should test between 6 and 8 pounds and of course, the hooks used are usually size 4 to 6, depending entirely upon the size of minnow being used.

(Turn to page 27)

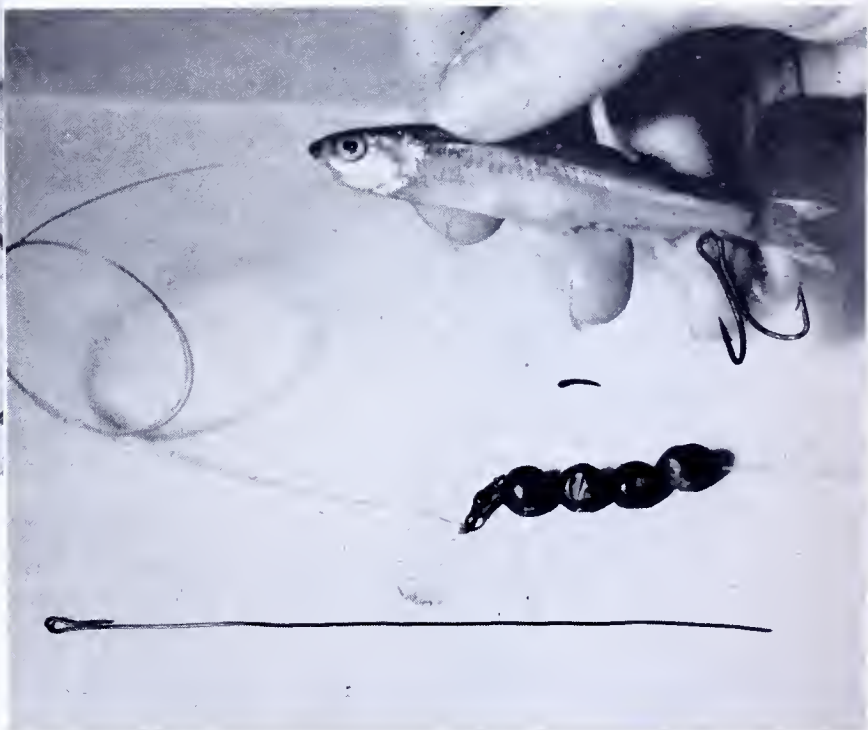


This is Kenny Sands' minnow rig. Outfit is made of five feet of 8-pound test leader, fastened to an 18-inch piece of 6-pound test. Swivel is placed between the two strands and split shot is fastened to leader next to swivel. A wire with a loop at one end is used to sew minnow onto line.



Here's how to sew a minnow on a line or leader. Insert wire with end loop through minnow's body and pull leader loop through.

With leader loop through body, fasten double hook in place and draw tightly against minnow body.





Land That BIG FISH

By Richard Allen Knight

DURING the course of a year's angling, nearly every fisherman hooks at least one big fish. Yet very few of these lunkers are landed. To the non-fisherman, luck is a controlling factor in his estimation of angling prowess. By such standards, outstanding men in any sporting field gained their reputations through the blessing of good fortune. Happily, such is not the case.

The fisherman who consistently takes fish every trip is an intelligent observer. He has learned where to find fish and, most important of all, what methods take fish best under all conditions. Yet, like the bungling beginner in the sport, this man often will hook and lose a big fish that could have been landed.

Perhaps the most common contributing cause in big fish loss is faulty terminal tackle. Improper ties of lures to the leader, weak or poorly constructed leader knots, second-grade leader material and so on—all these can be heartbreakers. It is so very easy to test terminal tackle **BEFORE** the fish is hooked that there is little excuse for having such a calamity happen.

It is best to assume that each trip will produce at least one large fish. With this in mind, check those points that might let go if any sudden strain is applied. Make this check list as important as locking your automobile and you will save yourself a great deal of grief later.

Begin with the line end. Whether you use a loop or a knot, there is bound to be chafing and wear. Test this and be sure that it tests to maximum strength.

Start at the top of your leader and test each knot and strand for wear. Like a chain and its links, a leader is as strong as its weakest section. Find that section and repair it—**FIRST**.

Before nylon leader material was in the common use it is today, I spent a month fishing in upper Vermont with a friend of mine who is a practicing physician. With him he had brought a large supply of surgical gut. This gut was husky in construction and it was extremely difficult to break a section of it with your hands. The first evening at camp, we tied up several bass bug leaders to use the next day.

We fished a pond near camp with better than average success the next day, taking several respectable big-mouth over four pounds. Toward evening I was casting a topwater bug along the face of the dam at the end of the lake. I was using the same leader

I had started out with in the morning. I was more than satisfied with it and actually felt that it was close to unbreakable. On the third cast, I raised the largest bass I have ever seen north of the Mason-Dixon Line. This time, however, the leader parted on strike.

While the surgical gut we were using was strong in appearance, it had a number of flat spots in it. Casting all day long with this leader had overtaxed one of these flat spots and it let go at the first sudden strain. With it went a large fish that any angler would have been proud to land. All of this could have been avoided **IF** I had checked the leader after landing each fish.

There are several popular knots used in attaching the lure to the leader. Since the introduction of nylon leader material, anglers have found their knots will pull loose because of the slippery nature of the substance unless they are carefully tied. Pick a good durable knot and attach your lure carefully. Then, **TEST IT** to make sure. All this takes as little as five minutes and will pay dividends in the long run.

Large fish, regardless of species, behave pretty much the same when hooked. To be sure, some are more acrobatic than others, but usually the first bit of action is a sustained run for deep water. This seems to hold true in a great majority of cases. The reason is obvious. Although large fish spend a great deal of their time in deep water, they feed in the shallows and riffles. Quite often their feeding stations are some distance from their regular homes. Consequently, after being hooked, their initial runs are back to more familiar territory.

The length of the first run is limited by the size of the water fished. In a small stream, it may be less than twenty-five feet, but in larger water, it may be well up to fifty yards or better. For this reason, we use over-size, single-action reels equipped with as much backing as they will hold comfortably. The weight of this backing is a matter of choice. Any braided casting line will serve the purpose so long as its breaking strength exceeds that of the leader point. My preference is 14-18 pound squidding line—nylon construction—because it combines maximum strength with minimum of bulk.

When a big fish starts his first run there is very little you can do about it. As a general rule, his strength exceeds that of your terminal tackle and trying to stop him at that time would

be folly. Rather than apply sudden heavy pressure, I have found it better to allow the fish to run against tip pressure only, using the drag of the line and backing as a brake.

The light-tackle saltwater angler learns quickly to handle large fish on a fly rod. Application of such knowledge to large fresh water species is a great help. I have learned that by raising the rod high over my head and slightly to the rear, I am able to maintain constant pressure while keeping the line and leader well up to avoid snagging on underwater obstructions. Then too, this "raised rod" method eliminates the possible overtaxing of your tackle, because with the rod high you fight the fish with the tip alone. Any sudden strain on the line is tremendously diminished by the spring action of the angler's arms. Conversely, if the rod is held low, so that most of the pressure is placed on the middle and butt sections, sudden strains will result in breakage.

Perhaps the most common mistake made in fish handling is the attempt to handle a fish by the "strip" method rather than fighting him from the reel. Every time the angler attempts to strip line rather than reel it, he lays himself wide open for a snarl should the fish make an unexpected run. Then too, any time you touch the line during the fight you deprive the rod of the fine spring action of the tip, thereby giving the fish the possible downhill pull that he needs to break your terminal tackle. Make it axiomatic to let a large fish run out the excess slack on hand and from then on handle him entirely from the reel. By this method, a sudden run is braked not only by the drag of the line but also by the reel click.

The power possessed by the average fly rod is perhaps the world's most underestimated fact. It has been my belief for some time that, given a sufficient amount of time, and barring snagging of the line and the possible chafing of terminal gear, any angler equipped with a fly rod can land any size game fish he should happen to hook. To the disbelievers, let us point out the outstanding examples. Lee Cuddy of Miami, Florida, landed a 63 pound tarpon on regulation fly-rod equipment using a 12 pound test leader. Joe Brooks, also of Miami, landed a striped bass slightly under 30 pounds on the same tackle. I hooked and brought to gaff in forty minutes, again using a 12 pound leader point, a channel bass (Redfish) weighing 22½ pounds. Hanging over my fireplace is

a Largemouth bass weighing 8½ pounds which I landed in ten minutes on a fly rod, using an 8 pound leader. A fly rod is a deadly instrument. It never gives the fish the downhill pull he needs to break your tackle. If you doubt this, try this simple test. Tie a four pound nylon leader to a tree and try to break it against a steady pull of the rod with the tip up. You can't do it.

There are several ways large fish can be lost through no fault whatsoever on the part of the angler. Perhaps the most common is terminal tackle chafing through during the battle. If the fish is hooked deep in the mouth, even the strongest leader is brought in contact with the bony surfaces of the fish's outer mouth and will, in time, chafe through. I watched my father fight a tarpon well over the 125 pound mark for two and a half hours only to lose him when the fish was on its side and licked because the leader chafed and let go at the crucial instant. This was a 12 pound leader, but subsequent tests showed that chafing had reduced its diameter to one-third of its original diameter and its strength to less than one pound. This is heart-breaking to say the least and short of using a wire trace, there is very little that can be done about it.

If a fish hangs up the line in a snag, LOWER the rod and release all pressure. Although the odds are against it, there is a hope that the fish will free the line himself. If it is possible to reach this obstruction, keep the line slack at all times while freeing it. If the fish is well hooked and the line does not foul sufficiently to give him a straight pull, you have a chance of landing him.

Fighting a large fish successfully takes headwork and a thorough knowledge of what your tackle will stand. Never let up on a fish once he is hooked. Apply MAXIMUM pressure just short of the breaking point at all times. Attempt to tire and whip your fish in the shortest and SAFEST possible length of time. If you make every foot of line he gains on you an effort that saps his resistance, you will find him ready for the gaff or net much sooner than you expected.

One of the common mistakes, and one that causes a large percentage of fish loss, lies in the selection of the battleground, so to speak. If you fight your fish where you hook him, your chances of landing him are cut two-thirds. During the past trout season I saw one of the most tragic examples of mishandling of large fish we have

ever seen. An angler was fishing from a bridge that spans one of the deep pools in a trout stream near our home. It was his good fortune to hook one of the monster Brown trout that inhabit this stretch of water. His tackle was more than adequate for the task but his enthusiasm got the best of his good judgment. Rather than make his way off the bridge and down the shore to the shallow tail of the pool, he attempted to kill the fish from the bridge. After some ten minutes, the big fish came to the surface, thrashed once and smashed the leader with ease. With the use of a little common sense, this angler would have had a trophy he would long remember.

A large fish of any species knows his home water. He will take advantage of every bit of bottom cover in his attempts to break the leader. He will use the current to increase the power of his runs. Weed beds, stumps, down trees—all of these are sanctuaries.

If it is at all possible, any game fish will head for bottom cover. Here he has always found safety from predators in the past and it is an act of second nature. Knowing this, plan your strategy well in advance. In a lake, head the boat for deep water, clear of trouble, where you can hold the fish away from bottom without straining your tackle too much. If you are wading, move toward shore and steer the fish out of the current.

Pick a bar or a beach where you can play the fish in fairly shallow water. Don't, however, make the mistake of getting the fish into water so shallow that he will be inclined to thrash. I lost an excellent Brown trout last spring by making this mistake. Make your landing site the best location available and give the fish the time necessary to tire him. Allow him all the line he needs to keep him from frantic exertion and settle down for a long wait.

Far too many anglers make the often-tragic mistake of trying to fight a large fish on a short line. This involves two factors that quite often defeat their purpose. On a short line,

(Turn to page 28)



there's an art to **WORM FISHING**

By N. R. CASILLO



Photo by Frank R. Wallace

My angling friend, an expert all around fisherman, is one of the most brilliant exponents of the dry fly that I know of. But, he doesn't kid himself. If worms are in order he uses them. If stream conditions are such that trout expect worms, then, why present them with something they do not want?

He has a quaint way of defending his premise: "If I have my taster all set for a fillet mignon that's what I want. Doggone if I want a waiter to change my mind by waving a menu in front of my face."

In fly fishing the angler strives to match the insects on hatch with his artificials. The fact that the fish falls for the subterfuge is no reflection on its intelligence. If perfection in the imitation is the idea, then, why not use the real thing. However, the chances are that perfect imitation is not nearly as important as perfect presentation. And therein lies the art

of worm fishing; its proper presentation under any and all conditions.

Of course, it requires no skill to fish with worms in a stream that is high and practically opaque with sediment. In the first place the fish can't see you, and again, trout are on the lookout for food washed down by the current. Worms in one form or another are the piece de resistance trout are most likely to expect under such conditions.

Only last year when within a few miles of our destination, the Caldwell in Warren county, George and I encountered a terrific downpour. It was over in twenty minutes, but it played havoc with all the streams in the area.

After surveying the sullen brown flood that was the Caldwell, George turned to me and said, "It'll have to be worms."

In minutes we scraped up enough worms from under logs, rocks and miscellaneous debris to do for the

morning's fishing. We hoped that by afternoon it would be clear enough for streamers. Worm fishing in flooded waters is admittedly a crude performance, but it is effective and often results in landing heavy fish.

Our method was simplicity itself, involving no more effort than just holding the rods as we leaned comfortably against a couple of stream-side trees. Our equipment was just as simple: our regular fly equipment except that my line was tied directly to a number 5/0 Carlisle snelled hook. George varied it slightly by using a three-hook worm gang, affixing the worm loosely on the hooks. I used one buck shot sinker while George was content with a couple of BB's.

When my companion felt that familiar tug-tug of a biting fish he would strike at once, his gang making it unnecessary to wait the second or two required of my simple hook rigging. A sportsman will not permit

PENNSYLVANIA ANGLER

a fish to swallow the baited hook to its nether extremities before striking. We are all anxious to catch fish, but not eager to sacrifice every iota of sportsmanship we think and hope we possess. In fishing murky, flooded water the advantage is almost all on the angler's side, so give the fish a break. Another thing, bear in mind that during the interim of flood water fish come in a lot closer to the banks.

By what other method could one catch trout or any other fish with streams high and roily? I can't for the life of me think of a single legal method. Besides, there's a certain amount of expectancy and mild excitement since you never know but what that gentle *tug-tug* may come from a record fish. The Scout motto applies here.

With stream conditions as described a fisherman will fare better by leisurely fishing the pools. Make yourself comfortable with the idea of remaining there as long as it's consistent with fair fishing. I've had far more success adhering to this rule than by avidly running along the bank to sample every likely spot. In my early days I was always seized with an overpowering desire to get ahead of the other fellow. Nowadays one never knows how many more anglers are still farther ahead. Under present overcrowded conditions the leisurely fisherman usually accounts for more fish.

Incidentally, when a pool you are fishing is muddied by wading or other activities of careless fishermen, don't permit your blood pressure to zoom. After the boys have done their stuff and are on their way pellmell to another pool, just load your pipe or light a cigaret for a calming smoke. In that interval it takes to consume either, the pool will be "rested" and the spooked fish will have returned to former vantage points. Fish have notoriously short memories.

One of the most highly specialized piscatorial arts is fishing low, clear water with a worm. Under such conditions the worm angler reaches the epitome of his art. Aside from being sporty as fly fishing it is one of the most effective methods for catching fish.

Since it is impossible to cast even a toughened worm like you would a fly, you must, then, to get distance, depend on the length of both your rod and line. And, of course, your cast consists of an underhand swing or from side to side. With an 8½- or 9-foot rod and the same length of combined leader and line you should not

experience too much trouble especially on an open stream. Use the lightest possible leader consistent with the size of the fish you expect to encounter. A three-foot length is often adequate, although longer leaders are necessary in very clear water.

For no reason at all except that they have always done it, altogether too many worm fishermen fish downstream, in the vast majority of cases permitting the worm to wallow along with the surface current. Sure, trout are taken by this simple method, but because of its lack of natural appeal unless a trout goes for it at once, it certainly won't later. To achieve naturalness use only enough lead to permit the worm to bump along the bottom.

Try casting the worm upstream. Its advantages are obvious. 1) since fish nearly always rest heading into the current, they can't see the approaching fishermen, 2) dislodged sediment can't herald your approach, 3) with a sinker befitting the current, the worm will always roll along the bottom. The correct amount of lead is important. Experiment until you get the desired effect.

Another effective worm cast is quarteringly across the stream, casting across and slightly above your position. Both the current and your slow retrieve will combine to move the bait naturally. Again, lead is important.

Speaking of lead, I was recently given a couple of spools of lead wire. Various lengths of it can be neatly and securely wound on the line or leader material to produce the slickest sinker I've ever used. The wire comes in a variety of diameters and winds with scarcely any effort. And it won't slip from position unless it is wound very loosely.

In worm fishing the hook is probably the most important part of the tackle. First, it should be of a type that best holds the worm, and secondly, one that is least likely to injure the fish when removed from it. This last could be simplified if the fisherman would cut the line or leader so as to leave the hook in a critically or deeply hooked undersize fish.

Obviously, the ideal setup would be to use barbless hooks. At once some worm fishermen will raise their eyebrows, thinking, perhaps, that such hooks are unable to hold fish. This is not generally true. If you keep a tight line there is slight chance the fish will slip off. To make a hook barbless simply flatten the barb on your favorite type with a pair of pliers.

Types of hooks and riggings are surprisingly numerous. And each and every one is the favorite of the angler who uses it. It would be presumptive on my part to indicate the most effective types when you may be using one that does the trick. But, believe it or not there are fishermen who accept the first hook that comes to hand. I have already mentioned a number 5/0 Carlisle, one of the most popular for average size trout. However, many fishermen prefer the number 20 Cincinnati Bass or the Kirby or the Sneek and others of corresponding size. Sizes do not uniformly apply to different kinds of hooks nor to those of the same pattern made by different manufacturers. If you missed reading that excellent article on hooks by Ben Robinson in the December 1952 *ANGLER* it would pay to do so.

A hook that has gained favor with worm fishermen is the claw bait holder type. This has the bent point and two small barbs on the back of the shank, the latter to help keep the worm in place. A number 1/0 or number 2 snelled claw hook is probably the most suitable for trout.

A spinner-worm combination is a killer for many kinds of fish. We regularly fish a lake where the bass go crazy over such a presentation; the spinner being a nickle plated 1/0 standard or a Colorado 4/0. When trout refuse worms alone, the addition of a spinner will often give them the urge. And is there an avid walleye fisherman who has never used a Junebug spinner and a worm?

What about worms toughened, scoured and cleaned in sphagnum moss? All worm fishermen think them tops. And there isn't a fisherman who doesn't have a favorite method. However, have you ever made a burlap and sphagnum roll of worms? Lay a piece of well soaked duck material on a piece of burlap of the same size, say 3 x 4 feet. Place a one-inch layer of soaked and well-wrung moss on the duck. Scatter your perfect (uninjured) worms on the moss and then loosely roll the whole, making sure to tuck in the ends. After wrapping it securely with twine, tie it to the front bumper of your car and then take off for your favorite fishing ground even though it may be a thousand miles away. When you stop for gas get the water can and give the roll a wetting. When unpacked the worms will be as lively as snakes.

And whether you are a devotee of flies, plugs, worms, or minnows, a good sportsman will always kill fewer fish even if he catches more.



Deren, of New York City's famed "Angler's Roost" demonstrates that it's easy even to cast a cigarette when spinning tackle is properly matched.

SPINNING anglers who feel that their gear does not cast as far or as easily as it should usually can improve matters by making minor changes in the matching of their tackle. Properly matched tackle is far more important than one might think. Yet, a surprisingly large percentage of spinning fishermen conclude that any rod, any reel, any strength of line and any collection of lures should work wonders when used together. Maybe they will but, if so, the thanks belongs entirely to Lady Luck.

There are only a few simple rules to observe in putting together an outfit that will make the long, easy casts which tackle manufacturers claim are so usual in spinning. To match tackle properly, it first must be selected wisely, so let's briefly review a few points discussed in the first article of this series before we go on.

The choice of a rod is a basic matter because all other elements of the tackle should be matched to it. For average inland trout and bass fishing, select one that is fairly light and resilient. In buying spinning rods, remember that all is not gold that glitters! Look 'em over until you find the one you want.

If your selection is a good one, you will have a rod seven or seven and a half feet in length with action, when the rod is oscillated in the hands, can be felt way down into the butt. When oscillation is stopped, the tip will come to rest quickly. The rod will have a long cork grip so that it can be rested against the stomach when pumping in a fish. This grip should be as long as fourteen or sixteen inches, and the sliding rings should fit it snugly enough so that the reel will not work loose in use. The rod should have five guides (plus tip-top), each guide graduated in size to give the appearance of a cone when one looks through them. The

Matched Tackle

All-Important Aid To *spinning*

By Joseph D. Bates, Jr.

butt guide should be large; preferably between an inch and a quarter and an inch and a half in diameter. These guides should be light, but sturdy, and should be supported not too closely to the stick.

Avoid specifying weight in selecting a spinning rod. Weight is misleading. Power and action are much more important.

Shall we select split bamboo, or glass fibre? Good split bamboo rods at present have more precise and more delicate action than those of glass. I'm for split bamboo in fresh water spinning, although glass fibre is superior for rods that will get rough treatment, or for salt water fishing.

A rod of this type can be fitted ideally to most of the orthodox medium capacity spinning reels. Well known examples are the "Ru Sport," "Orvis," "Mitchell," "Record," "Fix" and "Masterreel." All of these have different characteristics. It is well to inspect them all before making a choice. Reels in the "light" category are not to be recommended unless the angler wishes to use the most delicate of rods, and lines of three pounds test, or less. Examples are the "Ru Lac" (if you can find one) and the "Alcedo Micron."

Tackle in the "heavy" and "extra-heavy" grades is too powerful for fresh water fishing, except for the very largest fish. This, almost entirely, is salt water gear. Reel selection is limited, but the good ones are the "Ru Mer," "Centaure" and the "Ru Atlantic."

If you want a true spinning outfit, be sure to get a true spinning reel. So-called spinning reels which have a cap over the spool, or other unorthodox characteristics, are not spinning reels at all. Ordinarily, they will not cast as well with light lures and lines as will reels of the orthodox type, such as those mentioned above.

If you do not have a spinning outfit, but expect to own one, it is wise to study correct spinning methods before making a selection. It costs only a quarter in coin to order from the Rockland Tackle Company, Inc., of Suffern, New York, their informative booklet "Secrets of Success in Spinning." This illustrated booklet of forty book sized pages (by this writer) has helped many thousands of spinning fishermen to enjoy better success with their sport. Its value far exceeds its small price.

When the rod and reel are chosen properly for the type of fishing they are to do, the selection of lines and

Line Size	Lbs. Test	Line Dia. in Inches	Rod and Reel				Recommended of Lures Weight Range
			Light	Medium	Heavy	Extra Heavy	
L	2.20	.0063	*	..	..	..	1/16 to 1/8 oz.
M	2.64	.0071	*	..	..	..	1/8 to 1/4 oz.
N	3.08	.0079	*	*	..	..	1/8 to 1/4 oz.
O	3.33	.0087	*	*	..	..	1/8 to 1/4 oz.
P	4.40	.0095	..	*	..	..	1/4 to 3/8 oz.
Q	5.17	.0103	..	*	*	..	1/4 to 3/8 oz.
R	5.94	.0110	..	*	*	..	3/8 to 1/2 oz.
S	6.60	.0118	..	..	*	..	3/8 to 1/2 oz.
T	7.26	.0126	..	..	*	*	1/2 to 1 oz.
V	8.36	.0138	..	..	*	*	3/4 to 1 1/4 oz.
Y	10.56	.0158	..	..	*	*	1 to 1 1/2 oz.
Z	12.76	.0177	..	..	*	*	1 1/2 to 2 oz.
ZZ	15.40	.0197	..	..	..	*	2 to 3 oz.

(Asterisks indicate rods and reels appropriate for lines and lures listed.)

lures becomes relatively simple. Many spinning anglers make excellent choices in rods and reels—and then select lines and lures so badly matched to their tackle in strength or weight that their prospects of making long, easy casts are ruined.

There is a correct weight range of lures which ideally suits each strength of line, just as there is a correct range of line sizes to suit every rod. Select the weight range in lures which is in keeping with the power of the rod, and then choose a spinning line in the proper strength to match. If your weight range varies, carry an extra reel spool or two, filled with the correct strengths of lines. Above is an excellent table for the purpose:

Although this table was figured for "Tortue" French nylon monofilament, it applies equally well to American nylon monofilaments. It also applies to braided lines, if the angler wishes to use them.

Since the choice of lines has a considerable effect upon accuracy and distance in casting, a few words about spinning lines may be appropriate. The subject will be expanded in a later article.

Braided lines are more water absorbent and usually are so soft that they tend to cling to the rod in casting. Some anglers feel that they have an advantage in fishing popping plugs and similar top-water lures in that their excessive softness allows them to spool better when line is being reeled in under widely varying tension. French monofilament and the new American monofilament are limp enough to do this work properly, and my own feeling is that braided lines are outmoded, as far as spinning is concerned.

(Turn to page 29)



PROPERLY DESIGNED SPINNING RODS (L to R) No. 569 "light" and No. 669 "medium" South Bend—Joe Bates, Jr. split bamboo rods designed by the author for the South Bend Bait Company. Second pair are 7 1/2 foot "medium" and 8 foot "heavy" split bamboo rods made for the author by Traver Tackle Company, North Syracuse, New York.

Some Old Favorite WET and DRY Fly Patterns



17



18



19



20



21



22



23



24



25



26



27



28

WETS by CHARLES WETZEL

No. 17 *Grizzly King*

This fly was a favorite of Seth Green, noted New York fish culturist. With the exception of the green body and grey hackle, it is similar to the Professor.

Body, green floss silk, ribbed with gold tinsel; hackle, grey or grizzly; tail, scarlet fibres; wings, mottled mallard.

No. 18 *Rube Wood*

This fly was named after Reuben Wood, a great fisherman.

Body, white chenille, with scarlet floss silk tip; hackle, dark ginger; tail brown mottled fibres; wings, mottled mallard.

No. 19 *Little Black Caddis*

In the early part of the season, small black flies predominate over the water. These are usually the stone flies *Taeniopteryx fasciata*, *Gerris vernalis*, and the small caddis *Trichoptera aterrima*.

Body, black wool dubbing; hackle, red brown; wings, cream mottled.

No. 20 *Morrison*

According to an old volume, long out of print, this fly was named after Colonel L. Morrison of Lock Haven in the year 1886. It would be of interest to know more about the Colonel, for the fly he originated is a most successful wet pattern.

Body, claret floss silk, ribbed with black thread; hackle, black; tail crow feather fibres; wings, crow or black-bird.

No. 21 *Governor*

This fly originated in England and was supposed to represent a beetle found on their waters.

Body, peacock herl, tipped with scarlet floss silk; sometimes with orange; hackle, red brown; wings, woodcock.

No. 22 *Black Quill*

This fly is an imitation of the may-fly, *Blasturus cupidus*. Depending on the weather, this insect may be noticed over the slower moving streams from the latter part of April up until the

middle of June. On the Penns Creek it is very common and is generally known as the Black Quill. It exists for two days in this stage, then it sheds the sub-imago skin and ventures forth as the Early Brown Spinner.

Body, dark peacock quill; hackle, dark, red brown; tail, brown mottled mallard; wings, lead color, (heron, pigeon or duck.)

No. 23 *Early Brown Spinner*

This fly is the spinner or imago of the Black Quill. After the subimago skin is shed, the wings lose their lead, slate grey color, and the two outer tails increase in length, the middle one remaining very short.

Body, brown crewel wool; hackle, red brown; tail, mandarin duck fibres; wings, light starling.

No. 245 *Gold Ribbed Hare's Ear*

The name of this fly is derived from the fact that the dubbing body is secured from the base of an English hare's ear.

Body, dubbing of hare's ear, ribbed with gold tinsel; hackle, none; tail, brown mallard fibres; wings, starling.

No. 25 *King of the Water*

Little is known concerning the origin of this fly but it is one of the oldest American patterns.

Body, scarlet floss silk, ribbed with gold tinsel; hackle red brown; wings, mottled mallard.

No. 26 *Queen of the Water*

This fly is another invention of the old time angler and Professor, Christopher North.

Body, orange floss silk, ribbed with gold wire and palmer tied with red brown hackle; hackle, red brown; wings, mottled mallard.

No. 27 *Red Hackle*

This is the oldest known pattern of trout fly and dates back to A.D. 230.

Body, red wool ribbed with gold tinsel or sometimes plain peacock herl; hackle, red brown.

No. 28 *Red Ant*

This fly is an imitation of the winged ants, which occasionally come on the water in good numbers.

Body, red floss silk with peacock herl tip; hackle, red brown; wings, starling.

DRYS by C. L. PETERS

No. 7 *Little Marryat*

Body, Australian Opposum; hackle, cream; tail, cream hackle tips; wings, light gray fibres from a Mallard wing quill.

No. 8 *Fanwing Royal Coachman*

Body, Peacock and red; hackle, brown; tail, golden pheasant tippet; wings, white fans from a duck's breast or the bow of a duck's wing.

No. 9 *Gray Spider*

Body, gold tinsel; hackle and tail, blue dun; wings, none.

No. 10 *Wickhams Fancy*

Body, gold with brown hackle tied palmer; hackle, brown; tail, brown; wings, slate gray fibres from a duck wing.

No. 11 *Badger Bivisible*

Badger hackle tied palmer sparsely two-thirds of the length of the hook and more dense near the eye. A few turns of white hackle at the head to make the fly more visible. This pattern is one of the outstanding bivisible pat-

terns for the duration of the entire season.

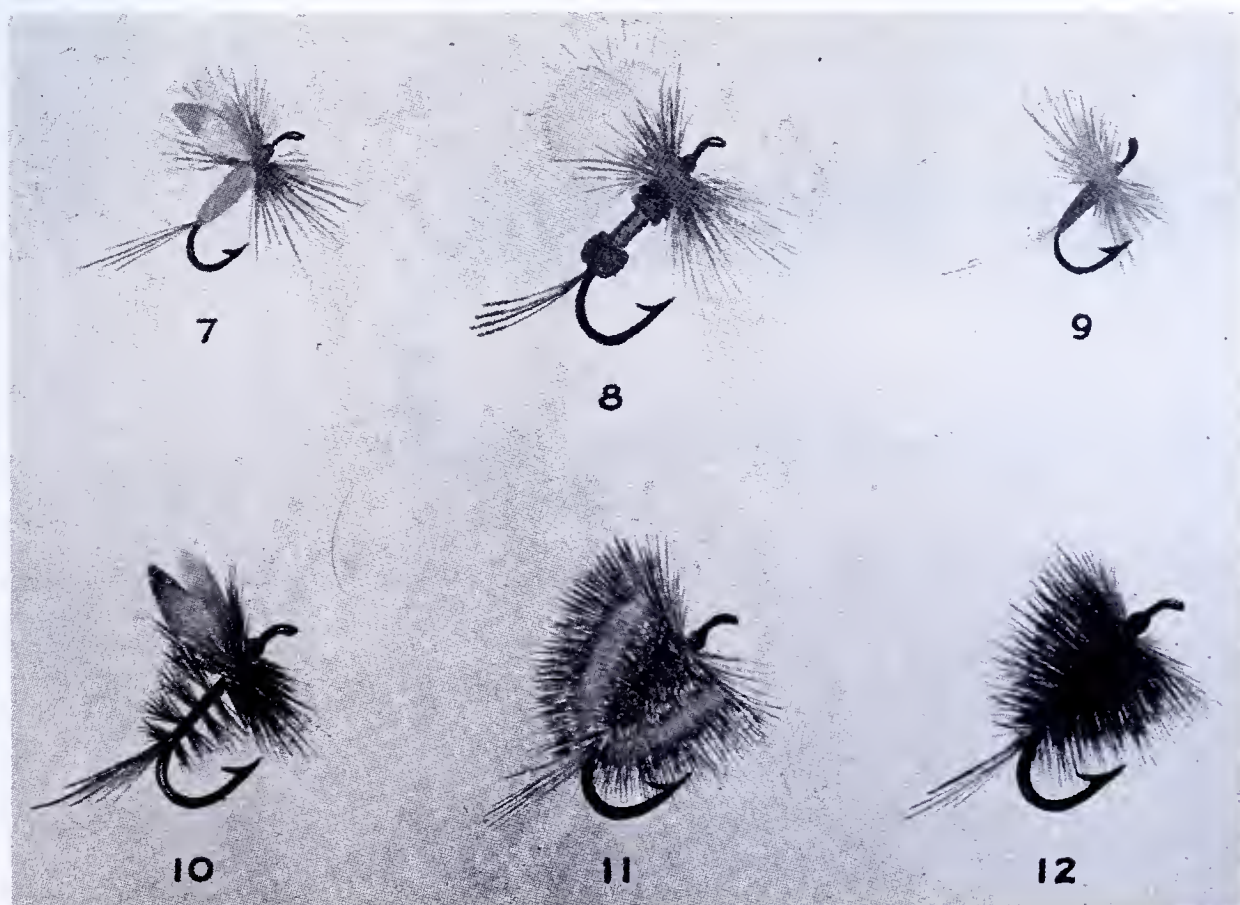
No. 12 *Brown Bivisible*

The brown Bivisible is tied the same as the badger, substituting brown hackle. I would suggest that one carry an assortment of different color bivisibles, but if I were to choose two patterns they would be the badger and brown.

You will notice that I have not mentioned several of the prominent patterns. Among these are such flies as the Ginger Quill, but a light Cahill and the Ginger Quill compare so favorably that they more often cover the same pattern.

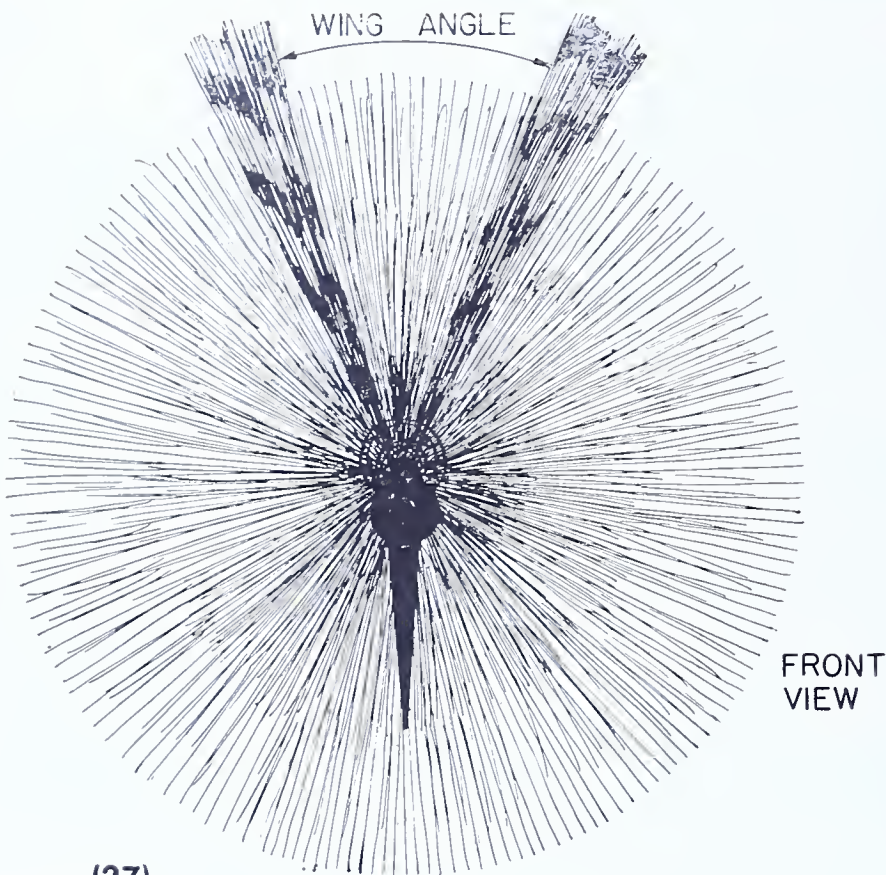
I have also omitted the black gnat for the reason that no other fly covers the needs better, when these flies are a necessity, than a small badger bivisible.

The larger stone flies are usually fished wet and for that reason I did not include them in the dry fly list. The smaller yellow stone flies or yellow sallies can well be imitated with a light ginger bivisible.



THE WINGED DRY FLY

THE winged dry fly is tied so that it will float on the surface of the water. However, it is supposed to float with the wings either in an upright, or spent wing position, depending, of course, on how it was originally constructed. With the winged dry fly the tyer must pay more attention to detail than with any other type of fly. For the standard fly tied on regular length shank hooks, the hackle should be sized very carefully. The wings usually give the beginner the most trouble. Remember, it is better to have the wings a little short than too long. Wings that are too long will make the fly top-heavy and will have a tendency to spin and twist the leader when one is casting. The tail should be as long as the shank of the hook (exception, short and long-shank hooks), and stiff enough, along with the hackle, to support the fly. The body of the fly should be slim rather than heavy.



Fly Tying

... via simplified methods

PART IV OF A SERIES

By GEORGE HARVEY

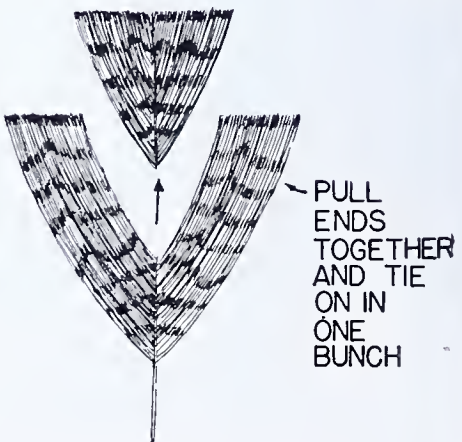
Associate Professor, School of Physical Education and Athletics
The Pennsylvania State College

Illustrated by James E. Cartey



A

(28)



B

PENNSYLVANIA ANGLER

Always keep in mind that no matter how well dressed the fly may be, it is no better than the material used to construct it. Always use the best material available and continually strive for perfection.

Diagram No. 27

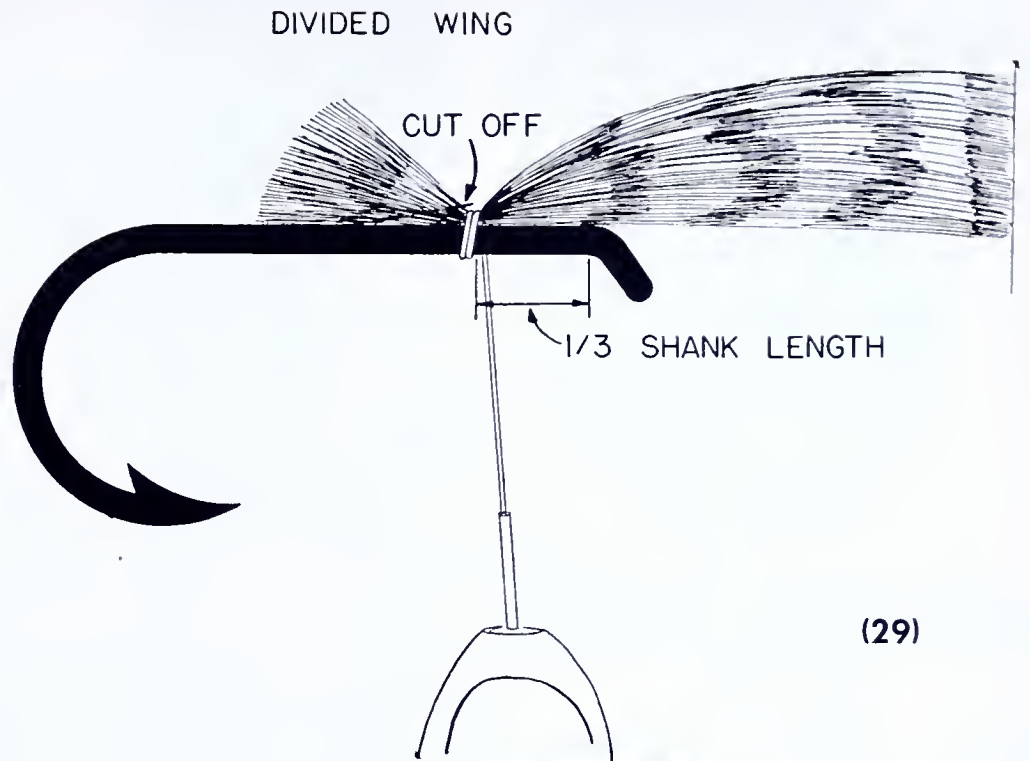
Diagram No. 27 illustrates the approximate length and angle to cock the upright wings on a dry fly. It would be well for the neophyte tyer to study the diagram and simulate the angle as closely as possible. One should realize that there may be considerable variance with each hook size insofar as the length of the wing is concerned because the length of the wing is usually about one-fourth longer than the hackle. The tendency is for the beginner to make the wings too long and, when this happens on the dry fly, it becomes top heavy and does not ride the water as it should.

Diagram No. 28

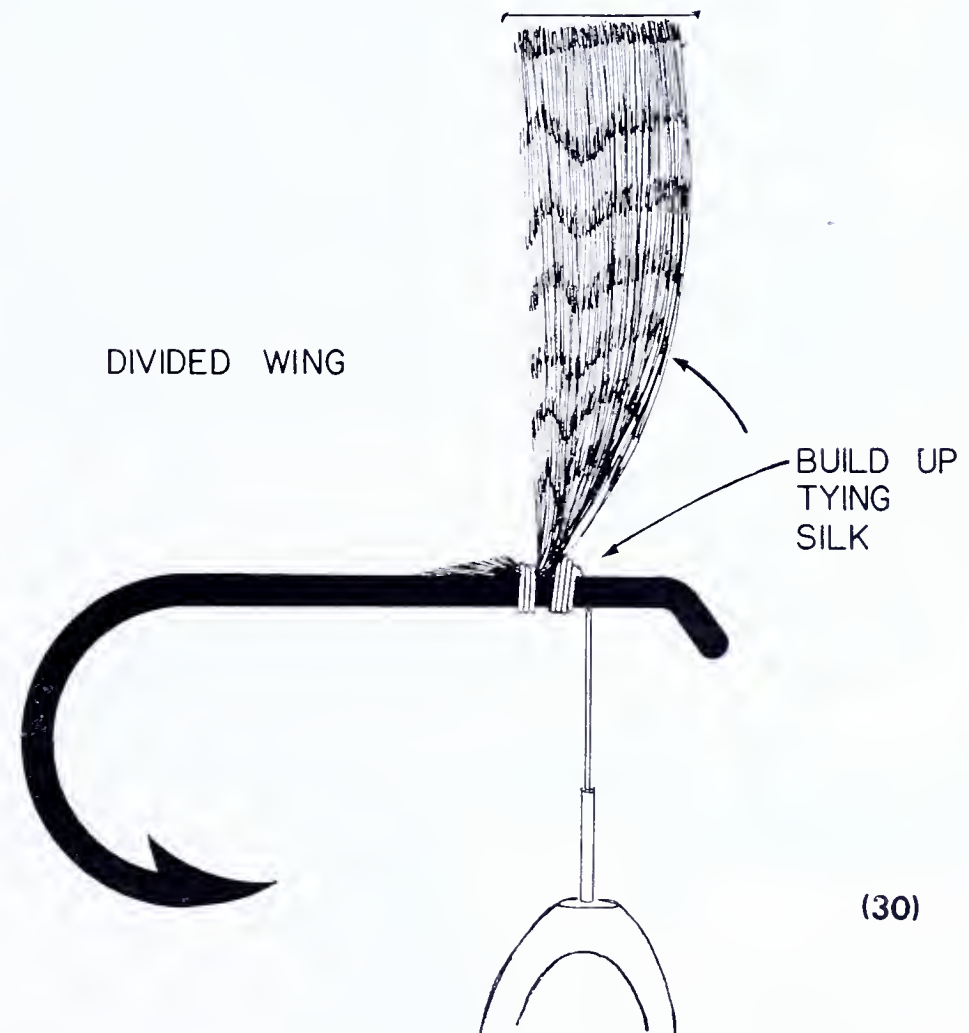
This diagram illustrates the most common methods of preparing breast, side or flank feathers of the various ducks for the divided wing. First, one should select a feather that is well marked and of uniform quality. Now strip off all soft and downy fibers. If the feather is large, sections may be cut from either side (A), and placed together so that the ends are even. Sometimes one may be able to get enough fibers from one side of the feather for the wings, thus eliminating cutting from each side. When the feathers are small and only have enough fibers to make one pair of wings, the best method is to cut out the center as illustrated (B). The length of wings determines how far back to cut out the center section.

Diagram No. 29

Divided Wing Dry Fly. We are now ready to set the wings. First, attach tying thread to hook and wind up to one-third distance back of eye. If sections cut from the side of the feather are used, be sure the ends of the fibers are even. Roll together and hold in compact bunch between thumb and finger of the left hand with the tip ends on the outside. The fibers are held in the opposite position from the way they are held when tying in the tail. The solid bunch of fibers is tied in approximately one-third of the distance back of the eye, using the same technique as described in Diagram No. 4. Remember, the wings should be about one-fourth longer than the length of the fibers of the



(29)



(30)

hackle on this fly. Make enough turns to hold the fibers fast, then cut off excess on angle as illustrated.

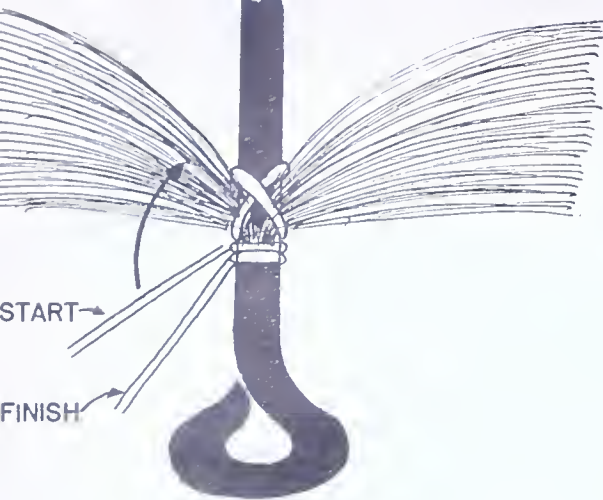
that will hold wing material perpendicular to the shank of the hook.

Diagram No. 30

Diagram 30 illustrates the next step. Grasp wing material and pull to upright position and wind tying silk in front of the wings. Make enough turns tight in against base to form a wedge

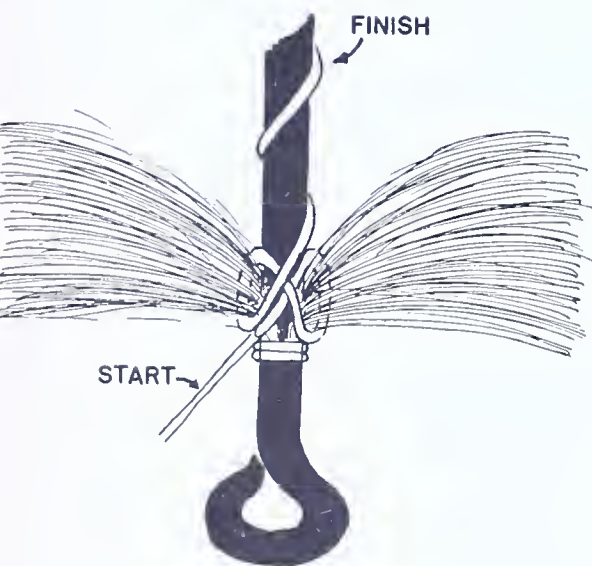
Diagram No. 31

(1) Use both hands and separate fibers into two even bunches. The tying silk is now at the position labeled, "start." Hold wing on left side and wind back between wings. Let wing go on left and grasp wing on



①

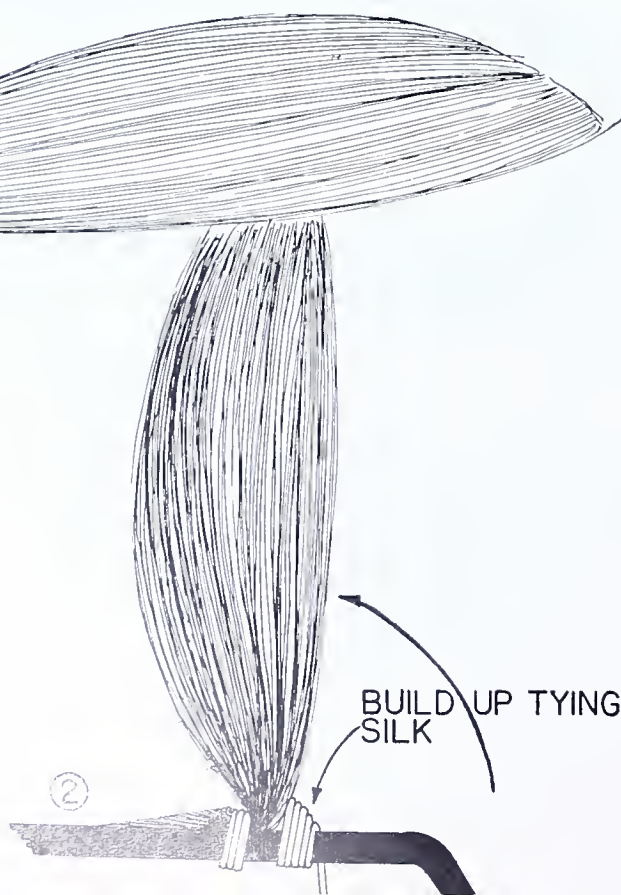
(31)



②

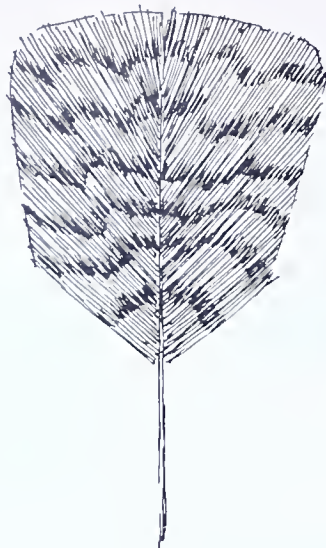


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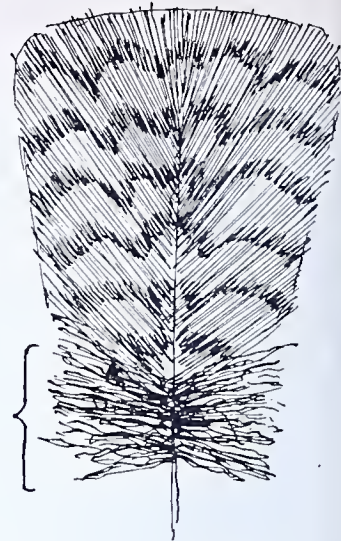
QUILL SECTION
WINGS

②

right side, and wind in under shank at rear of wings; then back across to the front and under to starting position marked, "finish." Cock wings as illustrated in Diagram No. 27, and repeat winding thread in criss-cross pattern until wings cock at the desired angle. Usually two or three turns are sufficient. After the necessary criss-crosses have been made, you should end with the silk in front of wings as in "start." (2) Now grasp wing on left side with thumb and index finger of left hand and cross silk back between, and to the rear of right wing. Release left wing and grasp right wing. Bring silk around base of right wing and across on top of shank, and back



STRIP OFF



(33)

FAN WINGS

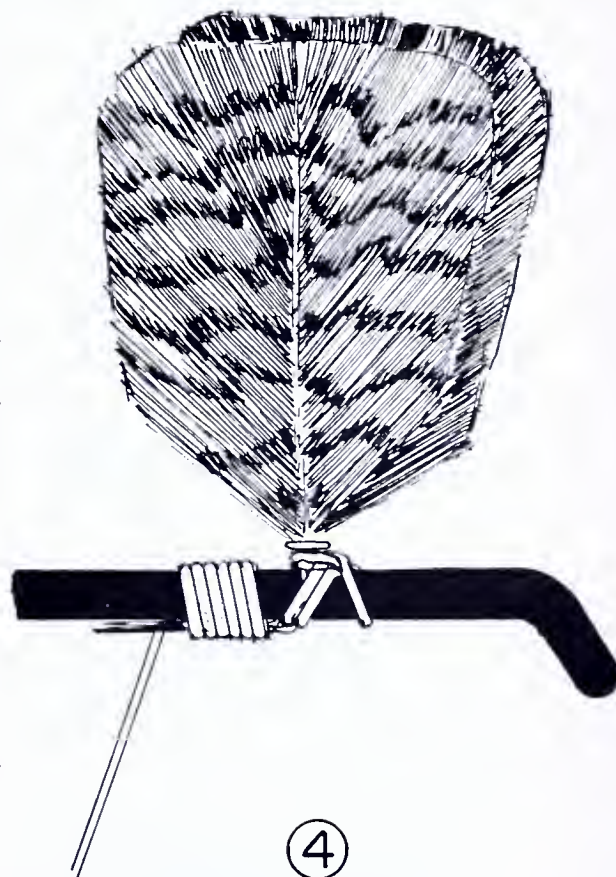
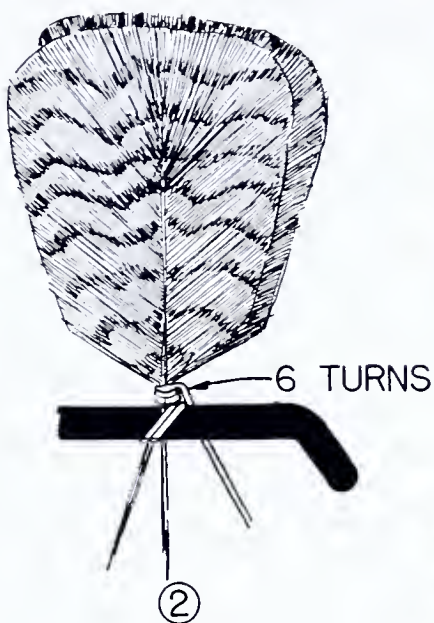
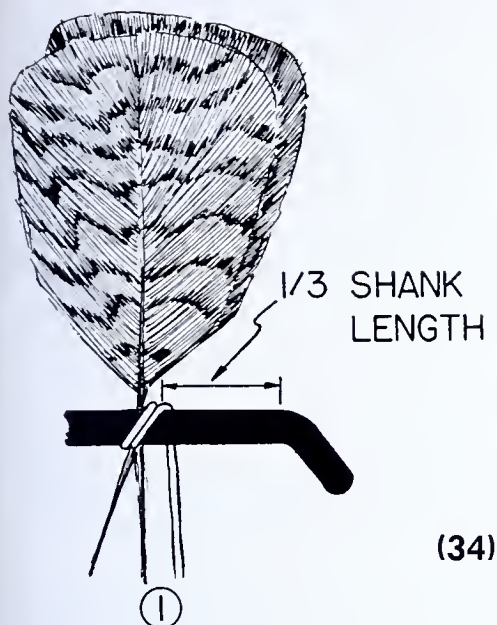
between wings to rear of left wing. Release right wing and grasp left wing, and wind thread around base and back between the wings. Now, spiral silk back along the shank of the hook. If too much tension is applied during this last operation, the silk will bend the wings and slip off, or will pull them too close together. When you finish, the wings should be cocked approximately as illustrated in Diagram No. 27. After several pairs of wings have been set, one is usually able to judge the correct tension for this operation.

The tying silk is now spiralled back to the center of the shank and the tail is tied in. Be sure to tie in enough tail fibers to support the weight of the fly. Since this is a winged dry fly, it is a good idea not to run the body tight up against the wings. Leave a small space between the body and the wings. This will make it easier to tie in and to wind on the hackles. This procedure should be strictly observed when dubbing is used for the body.

Now tie in both hackles, as previously described, behind the wings. Wind on the first hackle behind the wings and tie off on the bottom in front of the wings. Follow directions under Diagram No. 16 for the second hackle, but try to save enough hackle to make two to four turns in front of the wings. The turns of hackle that are wound on in front of the wings should be kept as close to the wings as is possible. Complete fly with half hitches or the whip finish.

Diagram No. 32

Quill Section Wings. The quill section winged dry fly is gradually losing its popularity simply because it



is not very durable. The spent and hair winged flies are gradually creeping in, and I believe you will eventually see them replace the quill section wings wherever it is possible.

Diagram No. 32 illustrates how this type of wing is set. This operation should not be too difficult because many of the procedures are quite similar to the setting of quill wings on the wet fly.

Secure tying thread and wind up to one-third distance back of eye. Cut wing sections. It is best to take these sections from the lower part of the quills, where the curvature is more pronounced. Lay sections together so that convex sides are against one another. Tie in as illustrated (1), one-third distance back of eye. There is one important detail to remember. When you grasp the sections between the thumb and index finger of the left hand, grasp them in such a way that, when they are held on the top of the hook and the thumb and finger are squeezed together prior to tightening up the thread, the ends of the thumb and finger are at least up to, or slightly extending over the eye of the hook. This procedure prevents separation and roll of wing fibers. As soon as wings are secured, cut off excess stump end. Next, grasp wings firmly as close to the hook as is possible and pull to upright position (2). Now, build up wedge of tying thread in front to hold wings in perpendicular position. If the wings need to be separated, criss-cross as in Diagram No. 31, (1). *Never* "figure-eight" around base of wings as (2) in Diagram No. 31. This criss-cross should be made very loose. Grasp the base of the wing between the thumb and finger of the left hand and

squeeze gently, using about the same pressure as when the wing was originally tied on. Tighten up criss-cross and then spiral thread back on shank, and finish fly as described in Diagram No. 31.

Diagram No. 33

The Fan Wing. Diagram No. 33 illustrates the way breast feathers are prepared for the fan-wing flies. Carefully match a pair of breast feathers and strip off down to the point where the wings are the correct size for the fly you are tying. Do not cut off quill. Now continue as described under Diagram No. 34 below.

Diagram No. 34

Tying thread should be one-third distance back of eye. Grasp wings in left hand so that convex sides are together. Hold wings on hook so that the stems straddle the shank and a little of stem protrudes above the shank. Make enough turns to secure stems as in (1). Hold wings tight and make enough additional turns around stems above shank, binding them securely together (2). Brace wings by winding silk down around shank as diagrammed in (3). Be sure the wings are not cocked to the right or left, but are in perfect alignment with the longitudinal plane of the shank of the hook. In order to correct misalignment, in case the wings are cocked to the right, take a turn or two clockwise around the base of the wings; then bring silk down under shank in front, applying enough tension to pull the wings into the proper alignment. If wings are cocked to the left, reverse procedure. When the wings are perfectly balanced, pull stems up and tie fast to shank as in (4). Finish fly in the usual manner.

NOTE: I have not illustrated the hair and spent wing flies. The hair wing is tied exactly the same as the divided wing. Hackle points are used for most spent winged flies. Tie wings on so that top sides of hackle are together. Now separate wings and criss-cross between them, at the same time holding wings in spent position. Make enough criss-crosses to hold wings in spent position. The rest of the procedures are the same as the ones just described.



By EUGENE BURNS

Here's a provoking article by the genial Mr. Burns who rips into the old "keep a tight line" angle with astonishing vigor. But go ahead, read it yourself, then tee off if you wish.

self-same platitude. It just came naturally.

Then the awakening! I was fishing and hooking big fish in a weedy stretch of river and losing fish just as promptly until I was fit to be tied. When I used heavier terminal tackle, deception was lacking and no action

Tight Lines

...sheer nonsense?

PERHAPS the most popularly entrenched myth in the fresh-water angler's repertoire is that big fish must always be played on a tight line.

Actually, by giving your broad-beamed lunkers uninhibited freedom as soon as the small sharp hook is imbedded, at the very beginning of the fight, or when he shoots downstream into the rapids, or when he starts into a weed-bed, may save you more trophy fish than anything you can do—although, to give you free warning, you'll have to contend with a lot of free advice: "Hey, why don't you keep that line tight!"

Behind this theory of playing fish on a slack line is in playing heavy fish on light tackle, the last ounce of your tackle's strength counts—and by playing him on a slack line, you'll more often than not have him to paste on the wall.

Just among anglers, I think it can be said without contradiction the finer the tackle, the more easy it is to fool the large fresh-water fish. This granted, then the foremost consideration is how can you hold the big fish with your gosamer terminal tackle? At best, it is no small problem to stop the great fish before he turns through your entire line; or before he

gets fouled up in snags or weeds; or before he pulls out the hook which may be holding by a filament of skin.

In the face of these dire mishaps, the answer is: you must keep your big fish calm and prevent him from getting excited (even though your own heart is pounding); you must exhaust him as soon as you can; and finally—although this may seem contradictory, although he may seem exhausted, take the few more extra minutes at the end of the fight to use him up completely. Too many strong fish gain their freedom at the landing.

But now, to return to that popularly-accepted fallacy: *Keep a tight line*. Just why this belief exists with a majority of anglers, a big fish must be played with a tight line to the finish after the barb has been set, I'll never understand. Why even back 300 years ago, Izaak Walton advocated throwing in your whole outfit and letting the big fish have his own way with it. Yep . . . read it!

But I must admit, up until three years ago, I too was repeating the

resulted. What to do? Then by accident, pure accident, I stumbled upon this theory of playing big fish on a slack line. I made a short cast and locked horns with a good fish of about two pounds. In dropping the coils from my left hand, the line tangled. To untangle it, I had to give the fish slack. In my frenzy, my fingers became toes and a whole lifetime of fishing seemed crammed into a minute.

But what did the fish do meanwhile? Instead of breaking into the weeds as his companions had done, he remained very calm in the middle of the stream. Then, by exercising that fish gently on a slack line, I finally brought him to net.

Then, by experimenting on some other cooperative fish, I was most pleasantly amazed to find that fish fought on a slack line, tend to remain in the deep mid-channel of the stream and exhaust themselves there instead of in the deadly weed-bed which had previously given others their freedom.

(Turn to page 26)

THE trout stared at me, and I stared at the trout. I had never seen anything quite like it. Perhaps the trout thought the same thing of me, but, at least, I didn't have a left eye that bulged out several times the size of the right one, and with a triangular pupil in addition, and this trout had just that.

The place was French Creek some miles upstream from Phoenixville, above the little hamlet known as St. Peter. Fishing had been fair, and all the trout caught seemed to be happy, normal creatures in full possession of good health and all their faculties. But this one! There was something obscene about the way it leered with that overdeveloped eye, and I didn't quite know what to do with it. It wasn't the sort of thing you'd bring home proudly and show to your friends, and it seemed a crime to put such an ugly critter back in the pretty stream.

However, I did return it after showing the freak to my fishing companions, and went on fishing in the same pool by a little wooden bridge. Then I caught another rainbow, and, even as I played it, there seemed to be something strangely familiar about it. Sure enough, it had the same enlarged left eye with the oddly-shaped pupil. It wasn't the same trout, because the bulge was even more pronounced on this one, and it didn't leer half so much as it looked horrified—so horrified that one eye popped out from its

By BILL WOLF

head. I've had the same feeling of horror upon looking in a mirror, but rather resented it in a fish.

That one went back into the stream, too, and I caught no more like them the rest of the day, but I'll always remember them as two of the odd trout I have met. Freaks like that are relatively common both in nature and in hatcheries, but they were the most deformed trout I had ever seen in a stream. They were almost enough to make a person give up drinking. I have caught some trout with short, blunt heads and fat bodies, but they didn't give the same impression of deformity as the two "Popeyes."

I met another trout one summer along Porter's Run about half a mile above where it empties into the Lehigh River that was just as much a freak in its own way as the ones from French Creek. Porter's Run is a tiny stream, filled with small brook trout which never grow beyond eight or nine inches at the very most. In fact, the majority are six inches or less. By diligent fishing, using great care, it is possible to get a mess of eating trout from the run, and I was trying to do that one afternoon while on a camping

trip. The water is only inches deep in most places, but there was one nice pool, perhaps thirty feet long and ten feet wide with a maximum depth of several feet. Standing at the head of this pool, and keeping out of sight behind some brush, I cast a tiny Hildebrandt Flicker Spinner downstream and brought it back against the slightly overhanging left bank. I thought I saw a flash as it passed a clump of grass at the water's edge, but couldn't be sure because I was trying to stay concealed.

I tried the same cast again, and was startled when there was a heavy strike and I had a big fish on. That is, a big fish for that stream. It turned out to be a 13½-inch brook trout, a monster among brook trout in Porter's Run, and almost as much out of place there as a tuna would have been. It had callouses on its belly and a frayed tail from bumping over the shallows of the little stream. Its stomach contained three small trout, ranging in size up to four inches, and it must have been a grim destroyer in that one nice pool because it was so much out of proportion to all the other little natives.

I did meet some other big trout in that same trickle of water, however, but they had a place there. It was the day before Thanksgiving and a friend and I went down to spend a couple of days in the woods and sleep

(Turn to page 25)



**Some
trout
I have
met**

Mooneye? . . . Shad? . . .

Sawbelly?

(From Page 7)

crustaceans and insect larvae while the adult feeds on such food as plants and vegetable matter derived from the bottoms of lakes and streams. It is little esteemed as a food fish but serves as an important food supply for other fish particularly our game fish. Large numbers of this species suffer an annual mortality early in the spring the reasons for which are unknown.

The Mooneye is the only representative of its family in the Great Lakes Basin; it being abundant in Lake Erie and the Ohio River. The mooneye is perhaps best characterized by its large eye which is greater than its inter-orbital space (the space between the eyes on top of the head) and the lack of spiny scutes or scales on the belly. Further identifying features are the presence of a complete lateral line and prominent teeth on the tongue.

The mooneye feeds primarily on insects and their larvae, mollusks and small minnows. It is of no commercial value but serves as a food fish for a variety of game fish. The adult mooneye attains a length of over 12 inches.

The Alewife occurs as a landlocked species in Lake Ontario and some of the Finger Lakes. It has made its way into Lake Erie presumably through the Welland Canal. The alewife is readily distinguished from the mooneye and gizzard shad by its mouth parts. Its mouth is terminal and oblique, the lower jaw more or less projecting, giving it an "undershot" appearance. The snout of the alewife is sharp as contrasted to the thick snout of both the

gizzard shad and the mooneye. It also like the gizzard shad has spiny scutes on the belly and is without a lateral line. The adult alewife, usually from 8 to 9 inches is considerably smaller in size than either the mooneye or gizzard shad. It too is of no commercial importance. However it is an excellent food fish for lake trout and other game fish in Lake Ontario and some of the Finger Lakes. In Lake Erie it is choice fare for the blue pikeperch, yellow pikeperch and burbot. The alewife feeds primarily on animal plankton such as microcrustacea, insects and plant matter such as algae. Large numbers of alewives die annually in Lake Ontario in the spring (similar to the gizzard shad mortality in Lake Erie) and wash ashore creating a nuisance for cottage owners and beach resorts. The reasons for the mortality of the alewives as in the gizzard shad are unknown. Large numbers of small alewives were seined last fall by local bait fishermen in quest for bait fish and they for the most part have mistaken them for mooneyes. Indications are from past observations that this species is on the increase in the waters of Lake Erie.

Although these fish are of no food value commercially they do, as was mentioned before, have a certain "niche" in our aquatic fauna in that they provide an abundant food supply for our more valuable fish such as our game and certain commercial fish. On the other hand they are ill thought of by commercial fishermen who at times pick them up in large numbers in their nets and the annual die-off of thousands of gizzard shad along our lake shore and bay areas creates a clean up job of great proportions. It should be mentioned in closing that these fish are not *bait fish*—speaking specifically of the young—and should they be introduced in any manner into some of our inland waters the results may be undesirable.

FROM A STUDY OF MALE-FEMALE RATIO OF WINTER—CAUGHT PICKEREL*—By Jack Anderson

Date	Males	Females	Stomach Content
1/ 2/53	4	4	All had shiners in digestive tract, some partially decomposed.
1/ 7/53	1	5	Some empty; two had a crappie each in stomach. (Possibly calico bass)
1/10/53	2	5	One had a four inch catfish in stomach. Mostly empty.
1/10/53	4	1	
1/14/53	1	1	One had a half-grown bullfrog in stomach. One had 3" bluegill in stomach.
1/17/53	1	1	One empty. One with two shiners in stomach.
1/18/53	1	0	Five shiners in stomach, partly digested.
1/29/53	2	4	One had 6" pickerel in stomach, partly digested. One had five baby yellow perch in stomach. One had a 3" shiner in his stomach with a hook under the dorsal fin, obviously lost by an angler.
1/31/53	2	4	One with five small shiners, one partially digested, in stomach. Five of them empty.
Totals	18	25	

Notes: All pickerel taken legally by fishermen in private ponds in the Pocono Mountain area, from 16" to 23½" in length.

It seems significant that while these ponds abound in Newts, and though the Newts were active, that none of the pickerel had consumed any of these creatures.

*—Study made during past ice-fishing season by Jack Anderson, well known outdoor writer, Swiftwater, Pa.



"Last time I fished this stream I hung up in quite a few trees."

Some Trout I Have Met

(From Page 23)

out overnight. We found the brook and brown trout working up the run from the Lehigh River to spawn. That happened to be an extremely mild winter, and the spawning was taking place later than usual.

Most were big, fat browns, gravid females and courting males, barely able to wallow through the shallows with most of their bodies sticking out of the water when they tried to flee before our approach. We actually could have picked them up by hand had we tried because there is no place in a run that size for a large fish to hide. At no other time of the year would it be possible to see sixteen- and eighteen-inch trout as common as six-inch brookies in Porter's Run.

There were some brook trout spawning, too, smaller fish than the browns, but still nice. It was a most reassuring sight to see such natural reproduction, and know that some of the fry that would hatch would work their way eventually down to the Lehigh River and provide sport in the future. However, the most impressive thing was a male brook trout about eleven inches long. He was guarding a nest, and we first met him in the dusk when we couldn't see what was happening, but knew from the splashing that a fight must be taking place. Next morning we went back and found him where the noise had come from the night before—belligerently swimming around the nest which he was protecting, two ugly slashes showing on his side where he had been attacked by some larger browns in the same small pool.

Brook trout in small streams are notoriously shy, but this one wasn't. I sat down on a rock right beside him to watch, and he just showed uneasiness. I dipped a finger in the water near his nest and splashed the water a bit. He circled around angrily, trying to make up his mind whether or not to chase me. He finally tried it, making a splashing run at my offending finger. I have seen many bass and sunfish on the spawning beds show courage, but I think that particular brook trout was the bravest fish I ever met. It takes something almost beyond understanding to overcome natural fear and caution, and to attack an "enemy" as large as I am in defense of a nest. I left him alone, although I would have been glad to watch for a while longer. It seemed a shame to disturb him.

Then there was another brook trout which probably was the dumbest fish I ever saw. Brook trout are not especially brilliant anyhow, which accounts for the reason they were cleaned out of our streams early in American fishing history, but this one was more stupid than usual. I think the locale was Tom's Run in York County—at least, it was one of the streams in what we call the "lower end" of that county.

He flashed on a cast of a dry fly to a little pocket in the rocks of the stream. He tried to hit the fly on the next cast and missed. Then he tried again and missed, although I did everything I could to insure his success. Next time he almost did it. I tried to set the hook, and it nicked him in the mouth, actually jerking him a bit out of the water. I thought "well, he's been nicked, he won't try again," but made another cast as a matter of form—and that ignorant trout grabbed the dry fly and was hooked solidly. It was the same brook trout throughout because I could see every move it made, and there wasn't room enough for another in that same pocket.

A fish nicked as badly as he was seldom if ever comes back immediately for another dose of the same thing, except *he* did. Just further proof that nothing is predictable in fishing.

Brook trout are extremely wary in small streams, but beyond that they do not seem to have the same protective caution a brown trout possesses. I have often seen several of them fighting to take the fly. In Quebec and Ontario, where I sometimes fish for them, I use one or two dropper flies—something I never do in Pennsylvania. Where they are plentiful, it is not unusual to catch a trout on the terminal fly, and then hook two trout on the other flies which are moving madly through the water due to the first trout's effort to escape.

There was another trout I met again after a lapse of several years, and under the most extraordinary circumstances. Quite a few years back, a club to which I belonged reared trout in a small hatchery of its own, and allowed several of us to try an experiment. We wanted to stock a few fish in the upper reaches of a stream classified by the Fish Commission as a bass stream, and one in which trout had never been planted to the best of our knowledge. I fished the stream many years with a fly for bass, and

never saw a trout, or heard of one being caught in it; yet, it looked like good trout water to us.

So we took several cans of trout, perhaps 300 fish, around four inches long, and distributed them in the upper stretches and tributaries. Then we sort of forgot them except for a perfunctory visit each spring to fish for them. We didn't catch any, and the years went by. About the third season after our stocking, I was fishing the same stream for bass, using a small streamer. The place was a mile or more below any of the trout stocking. I came to a pool where a boy was angling, and something made me take a second look at his tackle.

He was sitting on the bank with a plug-casting rod resting in a forked stick. There was a cork float on his line, and about two feet under it, clearly visible, was a wet fly tied to the line! I asked him if he was trying to still fish with a wet fly without any bait, and he said he thought you didn't need bait with flies. I explained that you don't need bait, but neither do you fish a fly as he was, by just letting it hang in the water like a worm.

"This is the way it's fished," I demonstrated, flicking the streamer on my fly line into a run of fast water right below the pool. Much to my amazement—although I concealed the surprise nobly so the boy would think it happens every time—I hooked a nice fish. It started to leap about the water furiously, and I almost forgot to keep a tight line because I could see it was a rainbow trout, which dumbfounded me. "That's a trout, isn't it?" the boy asked when I finally landed the beautiful fish. He was so impressed that he said he was going straight home to get his brother's fly rod, and try to use a fly right. I was just as impressed, but didn't let on.

We had stocked browns and rainbows in the stream. The rainbows either drifted downstream, as did the one I caught, or else didn't survive well in the water because I never heard of any others being caught; but, each year I learn of several big brown trout being taken from the stream. They have to be survivors of that experiment in stocking.

There have been other chance encounters with trout that were where they shouldn't be. I took one big brown and one equally large brook trout from a stream that had been stocked only with rainbows for years. Both trout were vividly marked and

chunky, which seemed to indicate they had been there many seasons, and I can only surmise that they were hold-overs from some long-ago stocking, or else got mixed in with a shipment of rainbows. At any rate, they surprised me considerably.

Some of the trout I have met have been passing acquaintances, trout that practically said: "How do you do? How are you? And goodbye, sir!" Those are the ones that got away. I have never resented the freedom they won, but I have condemned my own clumsiness that lost them. I remember one time when I hooked a big brown, and played him for many minutes. I got to congratulating myself on the nice catch I had made, and thinking I could take the fish home with considerable pride—but I forgot that I still had to net him. Somewhere, in the course of the daydreaming, I got

careless and he got off. Another one that got away did it by the simple expedient of falling through a hole in the mesh of my net that had been left carelessly unmended. As I netted it, the hook slipped out of its mouth and it went straight through.

Finally, there are some trout that I have met at the table. I return most fish to the water, but each year I keep at least one nice mess for the house, and on fishing trips sometimes eat them by the stream or lake. One of the visual treats in eating trout is to sit down to some you have caught which have been cooked by a man like Charley Rethoret, who used to run the Hotel Rapids at Analomink on the Brodheads. Charley used to cook them so the flesh turned a very faint and pretty blue, by using vinegar in one of the waters in which he cooked them. He also could do a lot

of other things with trout and a stove.

I have also eaten trout prepared by Indians and white guides in the north country by spitting them on a stick and broiling them over hot coals. Then there were trout pan-fried along the stream, and I have even eaten a chowder made out of trout in an Ontario wilderness, which may seem like a desecration through using so delicate a fish for a chowder, but which was both a miracle—through being produced by an angling companion in such a remote place—and a taste treat.

Looking back, I feel that I have met some nice trout. They are a gentlemanly fish. The brook trout is like a dull but pleasant fellow. The brown trout is a cagy old country squire, hard to outsmart. The rainbow is a fencer and an aristocratic duellist. They're almost nicer than people.

Tight Lines . . . sheer nonsense *(From Page 22)*

Since that time, I have experimented with slack lines on big fish in at least a dozen different streams—while collecting a lot of unsolicited advice: "Hey, man—don't you know any better? Keep a tight line on that fish. He's a big one!" and I must admit that I dealt out no little confusion in turn by retorting: "Why?" and then, after a minute or two, slowly tightening up on my line and showing my bug-eyed stream-side observers that the big unexcited fish was still on, cruising the depths contentedly—but wearing himself out, slowly but surely.

Since adapting my slack-line principle, I feel certain that I have increased my big fish total four-fold—that is, giving the big fish slack line as soon as the hook was set beyond the barb. Contrary to popular belief, the hook simply will not shake out. It will come out only when the fish can get enough pressure to bear on the line to tear it out or at least to pull it out big enough so the barb will not hold.

This is what usually happens. By keeping the line slack after the barb is set the fish is unexcited. He forgoes that wild wild scramble for safety in the weed beds or rushing pell-mell down the wild, swift river. Actually he acts puzzled. He does not seem to know where to go. Should he be excited for a moment, the slack line will give him nothing to fight

against. Rushing 50 yards from his favorite hole must seem somewhat silly to him. However, to rid himself of

the annoyance of the weighted hook, he may make a leap as does the occasional fish which has had an artificial fly left in its face by an over-anxious tight-line angler. And like that fish which is trying to get rid of the hook,



"You flatter me, Mrs. Arsten!! An expert and genius, yes—but the best fisherman in the state . . . I dunno . . ."

your fish will not make a long downstream run of more than 25 yards, or so. At least, in three years' experience, that has not occurred to me.

After the big fish has cruised the depths for a while, I tighten up gradually, playing him softly and gently.

What happens?

The fish continues to swim back and forth in the deep water, unexcited, but yet wearing himself out. Meanwhile, as closely as I can judge, I gradually pour on more strength into the battle as the fish wears down. And then, finally, as he comes threshing to the top of the water, shaking his huge head, that's the time I give him just a little more pressure to lift his upper jaw as far out of the water as his size will permit.

Why add the pressure at the end of the fight? By now the hook may have worn a hole and slack line might let the hook drop out, the barb notwithstanding.

But myths, admittedly, die hard. Your tight-line advisers will counter: "Yes, but with a slack line the big fish can throw his hook every time."

With what? Frankly, the ichthyologist is not yet born who can tell you what muscles the fish could bring to bear to throw out an embedded hook. What happens, usually, is that the angler pulls out the hook with a tight line. Most of your fish are lightly hooked. When the fish leaps out and gets his full length out of the water he automatically becomes 20 times heavier. (In the water a 10-pound fish weighs about 8 ounces). At such times, when the fish is out of the water and going through his mighty gyrations, the hook can be pulled out—but not with a slack line.

"But what of the heavy lures?" persists the tight-line die-hard, "can't the violent shaking of the fish's head dis-

lodge it?"

And that is where he may have you. Admittedly, a big fish can dislodge a heavy lure by shaking his head during his leapings. If the fish is lightly hooked, the swinging lure's momentum may pull the hook out. But I'd like to point out that every time I've seen a hook dislodged it invariably came flying back toward the fellow holding the rod. Rather odd, isn't it? You'd think, just once, that the fish would hurl it to the other side. May I raise the slight doubt, even with a heavy lure, that the angler might have something to do with dislodging that lure? It is my belief that even with a heavier lure than a fly, that a tight line will endanger the terminal tackle more than a slack line will. At least, I'm landing more of my big fish now with the slack line.

"But it takes too long to fight a big fish on a slack line," persists the tight-line advocate. "I've always been told to get the fish into the net and off the hook just as soon as possible."

Not necessarily so. After all, a slack line does not mean the fish will not exhaust himself quickly if you force him to fight. It is not the pressure you apply on the fish that exhausts him: it is the action the fish is forced to take that wears him down—the long runs, the side-jarring jumps and the threshing. These are the things that take the starch out of him. Exertion does it: not the application of power on a bottom-holding stubborn fish.

So, provoke action. In playing the heavy fish with a slack line, should he elect to hang to the bottom, where the water is quiet and dog it out, recouping his strength, give him no quarter. Should he not respond to the tapping of the rod on a tautly-held line, throw in a handful of gravel—no large stones to break the line by

accident as I once saw—better yet, heard happen. How that man *did* talk!

Should the heavy fish go downstream, out of control, beyond the braking power of your rod and leader and be making for some dangerous rapids, there is only one thing to do this side of heaven—and that, quickly. If you are fishing with a spinning rig, open the pickup finger and let your line run free. If you have a single-action fly reel, strip line off the reel as fast as you can as you are sprinting downstream with the fish. It looks silly, but it may work. With tension removed, at least five times out of ten—perhaps more—the big fish will pause and as your line is carried below him, the light tension that dragging line creates may cause him to turn upstream and give you that blessed opportunity to get below him and then tighten up, forcing him to take more vigorous upstream action.

Should the big fish, however, elect to go into the weeds with you, despite the absolute slack, give him five minutes to back up. If he doesn't, use a slight pressure, and relax again. Once such a fish, after two attempts, backed out of a muskrat hole for me. But if he doesn't cooperate and you cannot wade into position to perhaps lift him out with your hand, break him off and fish some more.

I might insert an extra tip—a sort of dividend, here. If you will lift the big fish up easy, balanced on his belly, he'll obey you without a wiggle.

And as you lift out the big lunger, after fighting him on a slack line you may enjoy—even more than landing the big fish—the look of amazement on the bystanders. They simply hate to let go of their myth and it is so hard to believe that you can land at least twice as many big fish on a slack line.

Minnow Fishing

(From Page 8)

Minnows preferred by many are of the small creek varieties, dace, red fins, or stripers. Size 2½ to 4 inches is ideal.

So much for tackle. Technique is every bit as important, and foremost is fastening the minnow to the hook and line. Opinions of successful minnow fishermen vary on the best methods for hooking minnows. Some prefer to sew the line through the minnow, or run the leader through the mouth and gill, wrapping the leader around

the body and inserting the hook near the tail. Others prefer to insert the leader internally through the minnow, from mouth to tail, with the hook being looped on the leader. One thing is certain, the action imparted to the minnow is of extreme importance.

Baits retrieved through water without any motion are useless as are those that spin too freely. The minnow should be so fixed there is a slight curve between tail and head, whether made deliberately or caused by the water

pressure. This gives the minnow a slow rolling action in the water when retrieved, representing a wounded or crippled minnow darting about. Few big trout are going to pass up a wounded minnow that appears easy prey for its big hooked jaws!

A minnow rig recommended by Kenny Sands is made with a leader measuring roughly 10 inches shorter than the fly rod. In the case of spinning, the monofilament line will serve for the leader. Three-fourths of the leader is made of 8-pound test leader material with the lower portion made

of 6-pound test material. A swivel is tied between the two strands to prevent excessive line twisting. The loop placed at the extreme end of the leader is pulled through the minnow's body with the aid of a piece of looped wire or a large darning needle that has the eye partly removed. A double hook is then slipped over the loop and fastened securely.

Many wire rigs or harnesses for holding this bait are sold commercially, but most minnow fishermen steer clear of these. The wire holds the minnow's body too firmly, giving it a stiff, unnatural appearance. It should be remembered trout grow large only by being wise, able to detect the slightest hint suggesting the bait is not a natural one. Fishermen are up against educated trout when angling for these lunkers in public streams. Perhaps this is why creeling one holds a great deal of interest for most anglers, to put it mildly.

The problem of holding the minnow

on the bottom of swiftly flowing streams is solved by using plenty of lead on the leader. Depending on the rate of flow, as many as four to six large No. 7 split shot are needed or a few clamp-on type sinkers of comparative weight, but the lead must be attached well in advance of the minnow. The amount of weight necessary will vary from pool to pool, from one riffle to another and sinkers must be changed frequently to meet the existing conditions.

This amount of weight is easily cast with a spinning rod. When using a fly rod, the line is not cast but rather the rod serves as a lever in *tossing* the bait into mid-stream with a combination lifting and swinging motion. This is less injurious to the rod and there is less chance of tearing the minnow from the leader.

The preferred method of using this bait is casting or tossing it up-stream so that the minnow will pass large

rocks, eddies or swirls where big trout harbor. In heavy riffles it is necessary to retrieve the line at a lively speed. This is accomplished by grasping the line with the free hand and stripping the line forward while the rod is worked from side to side in a pumping motion. A yard or more of line is brought in during one retrieve. When using heavy lead the slight pause in the retrieving rhythm allows the weight to dip down toward the bottom, then dart upward causing the minnow to duplicate this same action while making a slow roll. With the bait hooked near the tail, the hook should be set the instant a trout hits.

Big trout are cannibalistic and feed to a great extent upon minnows. Some are caught on other baits and many with artificial lures, but those anglers who keep catching big trout year after year, use minnows exclusively! It is the surest way of creeling big trout and furthermore there is certainly a lot of fun trying!

Land That Big Fish

(From Page 11)

too many sudden strains are placed on your terminal tackle and, secondly, the fish can see your actions. This serves to "spook" him and keep him bearing down. It is better by far to fight the majority of the battle at sixty feet if the water fished permits it. With this length of line, the angler can put the maximum strains on his rod and tackle without the immediate danger of sudden breakage. Then, too, the angler will find that he has more control of the fish in leading him to the landing site.

Tiring a big fish is a monotonous job at best. After the initial commotion is over, he will often sound in deep water and sulk near the bottom. We have found times when breaking this "lying down" process takes quite a bit of doing. Try tapping the rod butt with the handle of your knife to send sharp vibrations down the line. If this fails, try changing your angle of pressure by moving up or downstream. Sometimes wading toward the fish will do the job if water depth permits. At last resort, a large stone thrown near him will usually stir him if the water is shallow enough. Above all, keep that fish moving, so that he has no chance to rest. As long as he is fighting rod pressure he will tire.

Landing a fish is perhaps the most crucial instant of the whole battle. Many a fisherman looks back and shudders when he thinks of the large fish that could have been landed IF—you know the story. Far too many records are lost at net or gaff. Unfortunately, many of these failures could have been averted. If you are using a gaff, remember one cardinal rule. In order for a fish to be gaffed properly, the point of the gaff must be set AGAINST the weight of the fish in the softest part of its anatomy. We have talked to many anglers who admit modestly that they ALWAYS gaff a fish in the gills or mouth. So be it. One of the finest ways to lose a sizeable fish is to hit the leader with the gaff. Far be it from us to question their abilities, but as for our own feeling on the matter, that is another thing entirely. If a fish is large enough to gaff, he is large enough to make it important to land him. Hold the gaff UNDER the fish, hook UP. LIFT, don't yank, the hook into the soft belly and keep the motion going with a lifting follow-through. Done correctly, you will find this method will put your fish on the beach with a minimum of effort. If you yank, the imparted momentum often will slide the fish off the gaff.

Then you must re-gaff him—if you can.

If the fish is being brought to net, submerge the net and bring it slowly up toward the tail. That way you won't scare him. If he is extra large, make sure that his head drops into the net first, lowering the rod tip as you lift, all in one smooth motion. With his head in the bottom of the net he is pretty sure to stay there. Above all, NEVER try to scoop the fish into the net. Lift him in and you will land him.



"My fishing partner's always in such a doggoned hurry to get going!"

PENNSYLVANIA ANGLER

When all is said and done, landing a big fish is not the technical procedure that it seems. Done successfully, it is merely the application of a little horse sense combined with a few breaks.

Making your own breaks before you start the day helps a lot too. By cutting down tackle failure, you will land many more fish. But, if we landed all of them that we hooked, our interest

would wane. Happily, such is not the case. So we keep on fishing and losing fish, knowing full well that that fish could have been landed IF—well, you know the rest.

Matched Spinner Tackle

(From Page 15)

Nylon monofilament is stiffer, smoother and less water absorbent than braided nylon. Therefore, it casts much better. French monofilaments, such as "Tortue," are ideally supple and smooth. Their strength can be relied upon. For these reasons I prefer them, although recent improvements have been made in American nylon which makes it comparable to the world renowned excellence of the French product.

In previous articles we have said so much about lures that nothing need be added except to stress the point that

their weights must be suitable to the strength of line being used. A lure too light for its line will not cast as far as it should. Ordinarily, the failure to make long, easy casts is due to too strong a line being used with too light a lure. Sometimes, also, the line is too wiry or too soft for good casting. In that case, it seems sensible to discard it and to buy a better one.

For the longest casts, use the lightest and most ideally supple line which is recommended for the weight range of the lures to be cast with it. Also, use a compact and streamlined lure with

minimum air resistance. Ideal examples of these are the little wobblers, such as the "Wob-L-Rite," "R. T. Sway," "Goldfish" and "Birdwing." Properly matched tackle can cast them to amazing distances—merely by a flip of the wrist!

No single fly casting outfit can be expected to be ideal for everything. Neither can any single spinning outfit. Fortunately for Pennsylvania anglers, however, a set of spinning gear in the medium strength range should cover nearly all requirements. With it, we can enjoy a wider latitude in fishing than is offered by any other type of tackle.

DON SHINER PHOTO



The Editor's Angle



Marlin R. Warner, Jr., with his 18¾-inch, 2 lb., 9 oz. brook trout he took last season at Paxtang Park. The fish won for him an award in the Harrisburg Hunters' and Anglers' Association Big Fish Contest.

New Bait for Channel Cats

Test netting on Pymatuning Lake has revealed a substantial population of channel catfish. These "cats" are generally not easily taken by the hook-and-line fishermen. The following interesting observations by Supervising Warden Carlyle Sheldon of the Northwest Division may be of considerable value in harvesting the catfish crop.

"Recently I discovered a man at Lake Erie who was having exceptional success with a night line and this individual was catching more catfish than all the other nightline fishermen put together. After talking with him for some time he finally told me that whitefish 'chum' was the secret to his success. He showed me what he called the 'chum' and it is the throat glands of a whitefish.

"Wishing to see what this bait would do on the catfish at Pymatuning, I se-

cured a supply from commercial fishermen at Erie and gave it to some good fishermen on Pymatuning, asking them to give it a thorough trial. Each one was successful in taking nice catfish immediately when the cats were not taking other bait at any time of day or night. This bait seems to continually give off an oil, which, I believe, has a smell that is attractive to catfish.

"In talking to fishermen, the main objection to fishing for catfish is the obnoxious odor connected with most popular catfish bait, such as partly spoiled shrimp, tainted meat and limburger cheese. The whitefish bait has none of these unpleasant odors.

"I believe that this new bait will be available at boat liveries on Pymatuning and through its introduction more catfish will be taken."

S. Carlyle Sheldon—Supervisor
Northwest Division

Dear Editor:

Enclosed find \$2, please renew my subscription to THE PENNSYLVANIA ANGLER for 2 years. I have been reading the ANGLER for two years and believe it is the best investment a fisherman can make.

RENALDO ULIZIO

Midland, Pa.

Dear Sir:

I certainly enjoy your fine articles on our own streams and other game fish waters. Have really used the last two issues with articles by George W. Harvey on Fly Tying. They are most instructive and simplified for an amateur tyer like myself. Best wishes for continued success.

WILLIAM E. CREAGER

Johnstown, Pa.

Dear Editor:

For the past 2 years I have been in military service and through your magazine have been able to keep abreast with fishing conditions at home. Frequently, in fact almost every day of the fishing season one hears the old complaint that fishing is poorer than it used to be but few of the anglers look into the matter to see what is behind the trouble. Too many fellows are killing their own sport by killing the LIMIT. If you can only convince these anglers to keep in mind your motto—"If You Would Catch More Fish, Kill Less," I believe our trout fishing would improve.

Another factor which I believe hurts many of our trout streams is lack of shade over long stretches of their banks, thus many miles of potential trout habitat are lost because there is no cover and no shade. In many instances, trees planted along a creek bank would, in a few years, cool the waters and longer stretches of stream would be available to all. (To this the editor says "Amen!")

PAUL A. CROWL

Linesville, Pa.



WINNERS 1952 AWARDS, 15th Annual Big Fish Contest, sponsored by the Harrisburg Hunters' and Anglers' Association: L-R, rear: W. W. Suedmeyer, B. C. McComell. Standing: Drayer Stackhouse, Charles Reed, Wallace M. Farner, C. M. Bowman, E. L. King, C. D. Clements. Seated: Dennis Richards, Rodney Glass, Leroy Baker, Marlin Warner, Carl Kirby is seated in front of the group.

Awards presented on February 3 included first prizes for largest trout and bass, trophy plaque. Certificates and articles of fishing tackle, club membership and a year's subscription to the Pennsylvania Angler were all awarded the winners by John Bistline, Contest chairman.

—Photo by D. L. BATCHELER, Pa. Game Commission

I received a letter from a land owner along the Little Mahoning Creek which is one of our main trout streams in Indiana county. The land is posted by the owner. The beginning of February I stopped to see these people, had a nice talk with them about posting the land along the Creek.

The land, according to them, was posted for several reasons. Last summer a fisherman fishing the creek running through the land came across the field to the house, observed the owner outside asked, "Is that your car standing there?" "Yes," the owner replied. "Have you any patching in it?" "Yes," said the owner. The fisherman said, "Get it and patch my boot, I tore it on your damn old fence along the creek." The owner obligingly patched the boot whereupon the angler left, saying nothing.

Certainly this real goon guy deserves to be sent a stink bomb! By talking to the owner the land will again be open to public fishing.

Arthur L. Walker—Warden
Indiana county

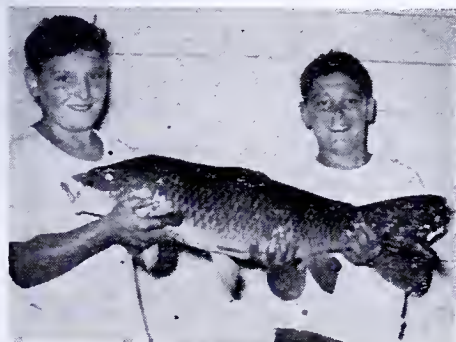
Dear Sir:

I am a subscriber to THE PENNSYLVANIA ANGLER and also the father of twin sons thirteen years old who are champion carp fishermen of our small town on the Delaware river. The enclosed photo shows them with one 32 inches, 17½ pounds of a group of 15 over 12 pounds they caught last fall.

The formula for their carp bait was given to them by carp fishermen from Reading, these same men travel from Reading to Portland twice a week to fish for carp in the fall. Pasquale Falco of Bethlehem, in the February issue, wanted a carp bait formula so you can pass this one along to him they use: 3 cups corn meal, 1½ cups flour, ¼ cup sugar. Mix with enough water to make a sticky ball, wrap the ball in cloth, drop it in boiling water and boil for a half hour.

CLYDE STOPP

Portland, Pa.



APRIL—1953



English fishermen wearing their tight-laced leather coats of the 17th century called "doublets" are depicted in this wooden sign outside a fishing tackle shop in London in a "Peterboat" with a bow at each end enabling it to be rowed either way, named after St. Peter—Patron Saint of Fishermen. Heavily laden nets were hauled ashore from that part of the River Thames near the shop when the carving was made in 1668—R. D. Barrett-Lennard.

Dear Sir:

The ANGLER is such a swell magazine, the price is right for my pocketbook and I think all other fishermen will agree on that. Thanks for a really wonderful magazine.

ED SEMENKO

McKeesport, Pa.

Dear Editor:

I am writing a suggestion for a monthly article for THE PENNSYLVANIA ANGLER. This article, I feel, would interest more sportsmen in the woods and waters as well as the beauty of our great state. Each month pick a certain lake, dam, section of stream or river in Pennsylvania and give all the information you can about where it is located, which route to take to arrive there, if there are picnic or camping sites, cabins available, boats for rent or if water is open to public fishing with your own boat. Of course these wouldn't apply to small trout streams but tell what fish are to be caught, baits or lures proven best. You could even show a topographical map of the area or a sketch, even photographs to show just what to expect when you get there. I imagine there are hundreds of places people never see or hear about because they never get this information. I know this information would be very helpful to me as an average angler, with only a day or so a week to enjoy my favorite sport of fishing.

Why not ask other readers for their opinions on this? I have been a subscriber to the ANGLER for years and feel this would make a worthwhile addition to an already splendid magazine.

PAUL W. LOSER

Lebanon, Pa.

This is certainly one big order, Mr. Loser because such information is extremely hard to gather and maps are always expensive and difficult to reproduce. However, we do have in mind running photographs of various streams, lakes and fishing spots throughout the state and perhaps we may give at least some partial information Mr. Loser desires.

No Big Catches But Sends Poem

Dear Editor:

After some 25 years of Pennsylvania fishing I'm afraid I haven't too many BIG catches to report. However, I have the enclosed bit of verse which I formulated to hand those who are forever asking me how many fish I catch. I hope you and the readers will enjoy it.

ORLAND M. PENICK

Pittsburgh, Pa.

JUST A FISHIN'

With Rod and Reel, bait line and hook
I hie away to a mountain brook
What matter if no fish are caught
I'll find the thing for which I've sought
I'll feel the thrill of expectant joy
That only I knew as a carefree boy
And thus I'll while long hours away
Loathe to return at close of day
Loathe to return to the city's din
Of crowded streets and busy men
As if perchance fate decrees a wish
I'll end my days where I can fish.

by Orland M. Penick

New Sportsmen's Club Officers For 1953

WESTMORELAND COUNTY SPORTSMEN LEAGUE: Gilbert J. Webberking, delegate from Herminie Sportsmen Association was elected president. Luke Cross, Vandergrift Sportsmen Association, first vice-president; D. B. Smalley, Rieco Sportsmen, second vice-pres.; Adam McKelvey, West Newton Sportsmen, secretary; J. B. Basehore, Lincoln Heights District Sportsmen, treasurer.

BLUE GOOSE SPORTSMEN'S CLUB, Ebensburg, Pa.: Irvin Hoppel, president; Ralph Kirsch, vice president; Archie R. Edwards, secretary; Herman Bagley, treasurer.

DORMONT-MT. LEBANON SPORTSMEN'S CLUB: Robert R. Terrick, president; Paul J. Devlin, vice-president; Ralph R. Berry, secretary; William C. Knechtel, treasurer.

DELAWARE COUNTY FIELD AND STREAM ASSOCIATION, Norwood, Pa.: Jack Meehla, president; Charles Lentz, vice-president; Bob Yake, corresponding secretary; Thomas Kewley, recording secretary; Les Ambler, treasurer; Howard DuBois, financial secretary; John Crockett and Roy Manning, stewards.

HELLERTOWN SPORTSMEN'S ASSOCIATION: Charles May, president; William Arnold, vice-president; K. H. Nauman, secretary; Grant Hoffert, treasurer; Trustees—H. G. C. Hoffert, Louis Bartakovits, Leslie Ruth.

In the

PENNSYLVANIA ANGLER

15 YEARS AGO

Sportsmen of Pennsylvania were shocked to hear of the passing along the trail of Henry Olsen of Oleona, Potter county, one of the best known hunters and fishermen in the North Tier country.

* * *

The Mansfield Rod and Gun Club elected John Flook as its president.

* * *

Approval of stream improvements



Paul Kahl of Harrisburg took this shot of Ray S. Cover, New Cumberland, Pa., at Rose Garden, along the Yellow Breeches creek, Cumberland county, Pa., last season.

for Hogestown Run for a total of \$18,500 through the WPA project was announced by the Mechanicsburg Sportsmen's Association sponsors.

* * *

"I GOT 'IM" a booklet written by Harris G. Breth, ardent Clearfield trout fishermen, was being released through the Progress Printing company in Clearfield. The 59-page booklet on trout was given a good send-off by THE ANGLER.

* * *

10 YEARS AGO

The April 1943 issue of THE ANGLER gave a recipe for BAKED CARP suggested by Mrs. J. M. Poole, as follows: "3 pound carp, 3 slices bacon, 1 large onion sliced, 1/2 cup rice, 1 can tomatoes. Wash carp and soak in salt water. Drain and wash again. Place fish in baking dish. Put bacon on top of fish and salt and pepper well. Pour tomatoes, mashed up over fish and chop up onion fine and drop around fish. Then add 1/2 cup washed rice. Cook slowly and baste occasionally until done."

* * *

The back cover of THE ANGLER urged anglers to "Eat Your Cake and Have it Too!" The best way to insure trout fishing that will last for the season is for the inveterate angler to return the small trout he catches.

On Wednesday, December 17, 1952, while helping Deputy Game Protector Maynard R. Sembower patrol Game Lands No. 82, we set out to find a buck deer which had been reported crippled.

After a two-hour search we located the deer and found it had a front leg shot away just below the knee joint. We discussed whether to kill the deer or try to save it as it was not in bad physical condition otherwise. The discussion ended as the deer attacked Mr. Sembower, put him into the creek in short order.

The animal had a rack with 8 points and Sembower was able to grasp the horns as it came for him. For someone with little experience this could have been serious. We shortly decided to kill the deer to keep others from being injured or even killed by the enraged animal.

Minter C. Jones—Division Supervisor
Southwest District

Wayne County Sportsmen to Honor Warden John A. Schadt

Wayne County Sportsmen's Assoc. will honor Warden John A. Schadt on April 28 at a Testimonial Dinner arranged in his honor at Grace Episcopal Parish House, Honesdale for his long and faithful service as Fish Warden for the Pennsylvania Fish Commission. Jerome E. Southerton and O. E. Hippensteel are chairmen for the event.

MOVING ???

Be certain your ANGLER follows you to your new address. Send immediately your new address also your old address to the Pennsylvania Fish Commission, Harrisburg, Pennsylvania.

EMERGENCE DATES OF TROUT STREAM INSECTS—Compiled by Chas. M. Wetzel

Common Name	Scientific Name	Habitat	Approx. Emergence dates in Climate Comparable With Penna.
***Little Black Stone fly	<i>Taeniopteryx fasciata</i>	Pa., W. Va., Tenn., Mass., N. Y., Minn., Mo., Md., Kan.	Apr. 15
*Red Quill	<i>Iron Pleuralis</i>	Pa., N. Y., N. J.	Apr. 16
**Little Black Caddis	<i>Chimarrha atterima</i>	Pa., N. Y., Canada, Del., Ind., Ga., N. J., Fla., Wash.	Apr. 27
Red Legged March fly	<i>Bibio femoratus</i>	Pa., N. Y., N. J.	May 1
Alder Fly	<i>Sialis infumata</i>	Pa., N. Y., N. J., Ill., Quebec, Nova Scotia, New England, Wash., Mich., Minn., Calif.	May 1
***Light Stone fly	<i>Isoperla signata</i>	Pa., N. Y., Nova Scotia	May 1
*Black Quill	<i>Blasturus cupidus</i>	Pa., N. Y., Ohio, Ill., Nova Scotia, Newfoundland, Ont., Quebec, Canada, N. H., R. I., N. J., Mass.	May 15
*Early Brown Spinner	<i>Blasturus cupidus</i>	Same as above.	May 17
Yellow Spider	<i>Antocha saxicola</i>	Well distributed throughout the Northern Hemi- sphere	May 16
***Stone fly	<i>Perla capitata</i>	Pa., N. Y., Md., Ill., Mass., Minn., Mich., Ind., Quebec, Kan., Tenn., N. C., Nova Scotia	May 15
*Pale Evening Dun	<i>Ephemerella dorothea</i>	Pa., N. Y., Tenn., N. H., Quebec, N. B.	May 20
*March Brown	<i>Stenonema vicarium</i>	Pa., N. Y., N. C., Quebec, St. Lawrence River	May 20
**Spotted Sedge	<i>Hydropsyche solossoanae</i>	Pa., N. Y., Wisc., N. H., Mich., Ill., Ont.	May 16
*Great Red Spinner	<i>Stenonema vicarium</i>	Same as above.	May 22
*Green Caddis	<i>Rhyacophila lomifera</i>	Pa., N. Y., N. J., Illinois	May 22
*Dark Green Drake	<i>Hexagenia recurvata</i>	Pa., N. Y., Maine, Mich., Mass., W. Va.	May 20
*Brown Drake	<i>Hexagenia recurvata</i>	Same as above.	May 23
*Ginger Quill Dun	<i>Stenonema fuscum</i>	Pa., N. Y., Ont., Quebec, New Brunswick	May 25
*Pale Evening Spinner	<i>Ephemerella dorothea</i>	Pa., N. Y., Tenn., N. H., Quebec, N. B.	May 25
*Green Drake	<i>Ephemera guttulata</i>	Pa., N. Y., Tenn., Ont., Quebec	May 26
*Black Drake	<i>Ephemera guttulata</i>	Same as above.	May 30
*Gray Drake	<i>Ephemera guttulata</i>	Same as above.	May 30
Fish fly	<i>Chauliodes serricornis</i>	Pa., N. Y., Md., Ga., Minn., Ohio	May 28
*Ginger Quill Spinner	<i>Stenonema fuscum</i>	Same as Ginger Quill Dun	May 27
*Iron Blue Dun	<i>Leptophlebia johnsoni</i>	Pa., N. Y., N. H., Ont., Quebec	May 28
*Jenny Spinner	<i>Leptophlebia johnsoni</i>	Same as above.	May 30
Orange Crane fly	<i>Tipula bicornis</i>	Pa., N. Y., N. J.	May 9
Whirling Crane fly	<i>Tipula bella</i>	Pa., N. Y., N. J.	June 1
*Brown Quill Spinner	<i>Siphonurus quebecensis</i>	Pa., N. Y., Ont., N. C., Quebec	June 1
Golden Eyed Gauze Wing	<i>Chrysopa oculata</i>	Commonly distributed.	Variable
Blue Bottle	<i>Lucilia caesar</i>	Commonly distributed.	Variable
White Miller	<i>Physostegania pustularia</i>	Commonly distributed.	Variable
Saw fly	<i>Pontania sp?</i>	Pa., N. Y., Md., N. J.	June 25
*White Gloved Howdy	<i>Isonychia albomanicata</i>	Pa., N. Y., N. C., Ont.	June 27
***Yellow Sally	<i>Isoperla bilineata</i>	Pa., N. Y., Ohio, Newfoundland to Saskatchewan & N. J. to Colorado	June 28
*Golden Spinner	<i>Potomanthus distinctus</i>	Pa., N. Y., W. Va., Ohio	June 28
***Willow or Needle fly	<i>Leuctra grandis</i>	Pa., N. Y., N. J., N. C.	June 28
*Yellow Drake	<i>Ephemera varia</i>	Pa., N. Y., Mich., N. H., Ontario	July 1
**White Caddis	<i>Leptocella exquisita</i>	Florida to Canada	July 2
Deer fly	<i>Chrysops vittatus</i>	Eastern & Northern States	July 2
Green Midge	<i>Chironomus modestus</i>	Pa., N. Y., N. J., Ont.	July 4
Black Midge	<i>Chironomus lobiferus</i>	Pa., N. Y., N. J., Ont.	May-Sept.
*Spotted Sedge	<i>Hydropsyche slossonae</i>	Pa., N. Y., N. H., Wisc., Mich., Ill., Hudson Bay	May 16
*Grannom	<i>Brachycentrus fuliginous</i>	Pa., N. Y.	May 30
*White May fly	<i>Stenonema rubromaculatum</i>	Pa.-Kettle Creek	June 26
**Big Orange Sedge	<i>Neuronia postica</i>	Pa.-Wallenpaupack Creek	July-Sept.
**Brown Silverhorns	<i>Athripsodes wetzeli</i>	Pa.-Kettle Creek	June 30

*Indicates may flies. **Indicates caddis flies. ***Indicates stone flies.





MAY

PENNSYLVANIA ANGLER

1953

BIG STINK AT ERIE • CANAL DAYS • ROMANCE OF THE SHAD

RHYTHM OF THE RISE • NYMPH FISHING • NEW DRY FLY CAST



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COMMONWEALTH OF PENNSYLVANIA

HON. JOHN S. FINE
GOVERNOR

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ENFORCEMENT

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DISTRICT SUPERVISORS

Northwest Division
CARLYLE S. SHELDON
Conneautville, Pa.; Phone 3033

Southwest Division
MINTER C. JONES
361 W. Lincoln St., Somerset, Pa.;
Phone 5324

North Central Division
C. A. BIDEISPACHER
767 W. 4th St., Williamsport, Pa.;
Phone 24561

South Central Division
HAROLD CORBIN
521 13th St., Huntingdon, Pa.; Phone 1202

Northeast Division
C. W. SHEARER
Box 3, Sweet Valley, Pa.;
Phone Dallas 48427

Southeast Division
JOHN S. OGDEN
242 E. College Ave., York, Pa.; Phone 7434

PENNSYLVANIA ANGLER

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MAY, 1953

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THE COVER . . . Beautiful falls on
Wild Creek, Carbon County, as pho-
tographed by La Mar Mumbar.

BACK COVER—A Forrest-Cypher conserva-
tion cartoon.



George W. Forrest, Editor

1339 East Philadelphia Street, York, Pa.

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2. MILLIONS of gizzard shad tossed into Erie boat slips, some six inches thick on top of the water. Only the curious and the brave can take the stench.





1. NOR'WESTER over Lake Erie washes "dead tide" into Erie docks, lashes public steamboat landing at foot of State Street. Fishing parties take off from here for pike in summer season.

the

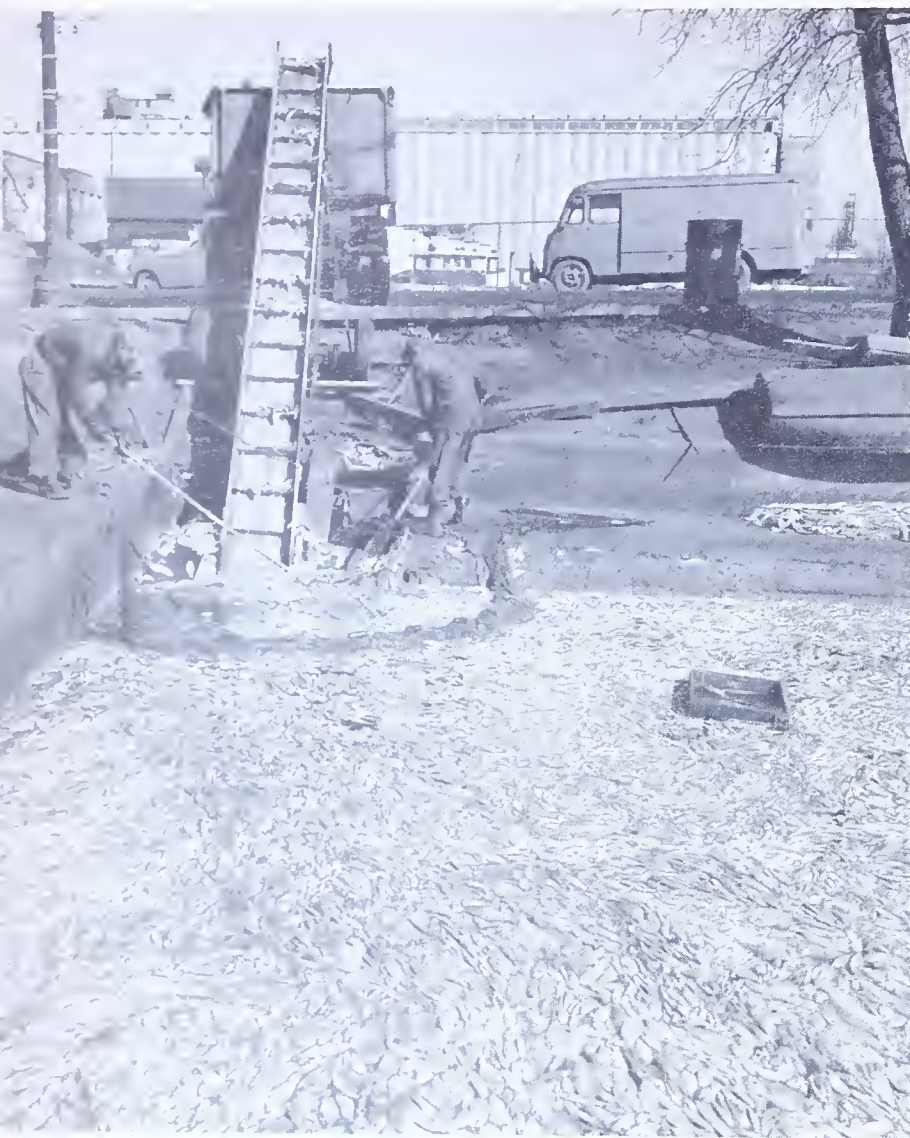
"BIG STINK"

at erie

by bill walsh

BIG STINK from a dead tide of decaying gizzard shad washed inshore from Lake Erie to the city of Erie in January and February 1953 gave city fathers a big headache.

A pall of stench over the city from the millions of fish washed ashore prompted the city health authorities to prohibit hauling them away through city streets. Though not a food or sport fish, the gizzard shad make a nuisance of themselves and can be used only for fertilizer by farmers of the area and by an Ohio firm manufacturing dog and cat foods. High in fat content the fish spoil quickly and smell more like fish than any fish known. Reasons for the dead tide are not yet fully understood.



3. 180 TONS OF BIG STINK removed via conveyor belt onto trucks, eventually to be processed into dog and cat foods or fertilizer on local farms. At Erie The Pennsylvania Fish Commission cooperates with park and harbor authorities supplying nets and other equipment to help clean up the nuisance.



4. HARDY GENTS operate the conveyor without oxygen masks. Certainly no one has envy for their task.

5. FISH RIGHT OFF ERIE STREET as workmen keep plugging, getting smelly dead gizzard shad off city streets along Erie docks. City Health Department often wish these finny critters were extinct.



There's Fish in the Old Canal Again

By HARVEY R. FRANTZ

ON THE afternoon of November 28, 1952 a group of sportsmen of The Inter-Club Canal Commission, along with numerous junior sportsmen eagerly awaited a truck load of fish from the Pennsylvania Fish Commission. This was the culmination of almost a year and a half of work—dirty, hard work that was accomplished on weekends and holidays.

The Inter-Club Canal Commission, made up of representatives of six local sportsmen's clubs, had rented a two mile portion of the old Lehigh Canal from the Lehigh Coal and Navigation Company in August, 1951. After cleaning out the bed and cutting the brush from the banks, a crib-type dam was constructed at the lower end. Incidentally, it was necessary, before building the dam, to send plans and drawing to the Water Resources Board of the Department of Forests and Waters for approval.

Almost as much time went into accumulating materials for the dam as went into its construction. Using old railroad ties and cast-off power poles, a frame work was built. For rock material an old stone building was completely torn down with the aid of a winch and some dynamite. Clay for fill was obtained from excavating contractors.

Although the dam was completed in September, 1952 the Inter-Club Canal Commission were under the impression that any stocking by the state couldn't take place until at least the fall of 1953. However, in October a fishery biologist of the Pennsylvania Fish Commission accompanied by the local fish warden inspected the impounded portion of the canal and took water samples for analysis.

Between the completion of the dam and the visit of the fishery biologist, the City of Bethlehem's new sewerage treatment plant went into operation. Sewerage that formerly found its way into the canal was now picked up by

(Turn to page 28)



INTER-CLUB sportsmen sign for the fish. Young fishermen demanded to know what procedure was followed.

JUNIOR ANGLERS eagerly watch "puttin' 'em in" process. Fish were bass, perch and suckers consigned to the canal by the Pennsylvania Fish Commission.

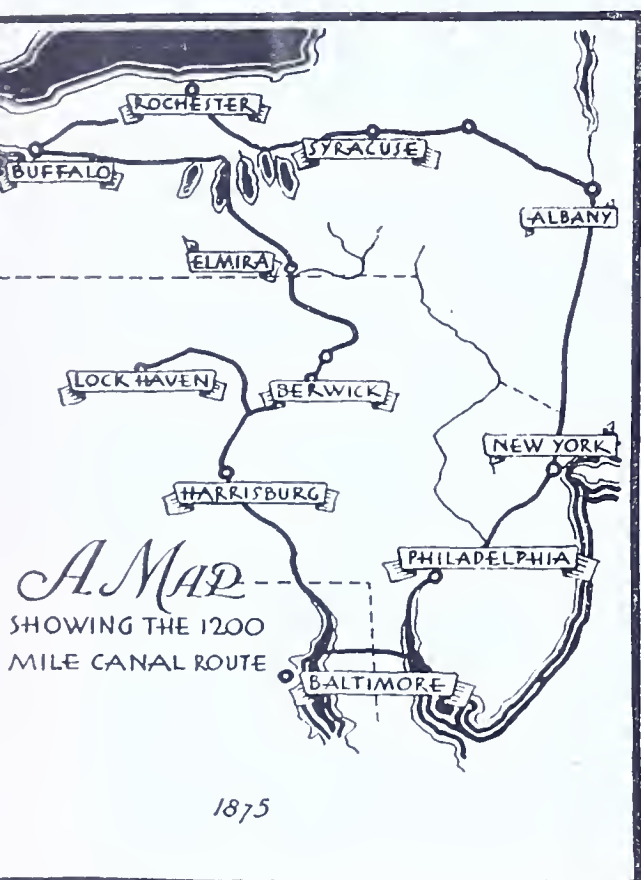


COMPLETED DAM showing typical canal-dam construction. High water flowing over dam will fall on rock apron thus preventing erosion.



Memories of Canal Days

By DON SHINER



MAP showing canal route that paralleled the Susquehanna River.

MULES AND HORSE TEAMS towed the canal boats. Travel was slow and leisurely, seldom more than 25 miles covered in one day.

UNLESS you can remember the Wright Brother's first flight, the assassination of President McKinley or the Civil War, the Pennsylvania Canal probably is just something mentioned on historical markers. But from 1828 until the turn of the century when railroads came to the front, the great canal was a vital system that hummed with activity all the way from the Great Lakes to the Chesapeake Bay. It was the only efficient artery for transporting volumes of freight between the interior and the old established coastal cities and it figured largely in the development of small towns along the Susquehanna river in Pennsylvania. In fact, the old canal even influenced the sport of fishing, and now as then, remains one of the favorite fishing spots for thousands of anglers!

The canal was a huge engineering task undertaken in those early years when this state was but a youngster. Gouging the 1,200 miles of waterway from the earth and building hundreds of locks with simple tools was a feat surpassing the construction of the modern super highways of today. But after years of toil by men and mules, the waterway was completed, linking the Chesapeake Bay area with all the towns parallel to the Susquehanna through New York state to Buffalo, Rochester and New York City. Celebrations in all communities marked the formal opening of the canal in the memorable year of 1828 and vessels laden with great loads of freight, pulled by teams of mules, began trickling through the narrow canal, set the pattern of commercial shipping for the next 75 years.

From boating molasses, flour, fish, oysters, coal, lime, lumber, bed

(Continue story on page 24—more photos on page 8 and 9)





CANAL WAS DRAINED in late autumn prior to winter freeze. Here a boat train rests on dry canal bed, awaiting spring business. Note large tiller at end of boat in foreground which was used to steer, keeping boat away from bank where team was doing the pulling walking along the tow-path on bank.



TOWNS AND VILLAGES sprang up along the canal. The repaired and built boats for the canal traffic which typically measured 80 feet in length, capable of hauling a ton cargo.

CONCH SHELLS were used by the old boatmen as horns to signal the lock keepers. The mellow tones could be heard 3 to 4 miles away and some boatmen could actually get a fair tune out of them.

OLD TIME BOATMAN, Bruce Cain of Lime Ridge, Columbia County, demonstrates how he often sounded the conch shell horn. A boatman in early youth, Cain remembers well the old Pennsylvania Canal days.





LOADING CARGO at Columbia Pennsylvania. This rare old photo was taken about 1890.



LATEST MODELS of canal boats anchored Berwick, Columbia County, shown awaiting cargo to be removed. Many of these boats were caught in the canal when the waterway was abandoned in 1900 and remained deeply mired in the mud as ghostlike reminders of a great industry.

OLD LOCKS still remain as masterful masonry of years ago. Through crumbling from frost and weather, many of the old locks remain as monuments to a thriving transportation industry of yesteryear.



THERE'S GOOD FISHING in many localities along the old canal. An anglerette shown here is fast to a big pickerel. The canal still holds sunfish, suckers, chubs, pickerel, bass, carp, a few eels and catfish.

CANAL TODAY looks like this many spots, choked with weeds but open water for catfish. Many anglers periodically visit the old waterways at evening, fishing by the light of kerosene lanterns.





Shad gill nets at night on the Delaware, about 1900.

pennsylvania romance of the shad

by william boyd

THREE hundred years ago shad and other migratory fishes annually ascended the Susquehanna and Delaware Rivers and their tributaries in such vast numbers that the shallows were beaten into foam by their struggles to reach spawning waters.

As soon as the shad appeared on their annual journey to the spawning beds the Indians, who found them a prolific source of food, became busy. They placed large stones close together in the water so as to make a huge V-shaped pen. Then every redskin in the village or villages, if friendly feeling prevailed, fell in line across the river, and moving slowly toward the open end of the driveway, yelled at the top of their voices and beat the water vigorously with brush.

Affrighted, thousands of fish swam straight into the pen built for them and, when they were well within, escape was barred by a huge net stretched across the entrance. Thus the

PENNSYLVANIA ANGLER

fish were imprisoned to be slaughtered at leisure by their captors.

The vast abundance of fish in the rivers and streams of the colony of Pennsylvania excited the astonishment of early European settlers, prepared as they had been beforehand by tales of the multitudes of animal and fish life in the new world.

Eventually, the fame of the fishing, especially that of shad in the Susquehanna, reached the hardy and thrifty settlers of Connecticut, and many of them left their homes in that part of the country, settled in the picturesque Wyoming Valley from Wyoming to Tioga Point, now known as Athens.

These Connecticut Yankees brought their nets with them and each neighborhood established a fishery for its own accommodation. For a long time the chief food of these hardy people was taken from the river.

Soon after their arrival trouble arose between them and the government of Pennsylvania over the right of possession of the Wyoming Valley. A war began that lasted 30 years, during

1784 the Pennamites had destroyed their seines, and so reduced them to the verge of starvation.

The bloodshed through which they passed left the settlements with so many widows and fatherless children that special provisions of bounty had to be made for them. In this situation, fish formed the chief item.

An arrangement was made among the fishermen by which one of the hauls at each fishery every year was given to the widows and the fatherless of the neighborhood, and to this was given the name of the "Widows' haul." By common consent it was agreed that the widows were to have every fish of a haul made on the first Sunday after the shad fishing commenced.

In one of these annual hauls it is said that at a fishery known as the Stewart, about midway between Wilkes-Barre and Plymouth, 10,000 shad were caught and turned over to the fund.

Records coming down from that day tell how ten men would form themselves into a company for the purpose

ing was done mostly at night, commencing soon after dark, and continuing until dawn of the next day, when the shad caught would be made into as many piles as there were "rights" in the seine.

One of their number would then turn his back and another would touch them off saying, pointing to a pile, "who shall have this, and who shall have this," and so on until all were disposed of. The happy fishermen would often go to their homes well laden with the spoils of the night.

Knitting the nets was done on rainy, cold days and evenings. The nets were knit in sections by the shareholders, each one owning so many yards of the net, and each one receiving his share of the fish according to the number of yards owned. When the sections were all done, one or two of the most skillful would knit them together and hang them, putting on the corks and leads.

The early shad fisheries were not common property. The owner of the soil was the owner of the fishery, and no one was allowed to fish without a permit. When the owners were not using the seines they often rented them out to others and took pay in fish.

Records which go back to 1787 disclose that one Caleb Wright purchased a half interest in a fishery between Shickshinny and Nanticoke, called the Dutch Fishery. For this share he paid \$53.33. In connection with this particular case there is a note which gives an idea of the vast amount of fish that must have ascended the Susquehanna in those days, it being related that a son of Caleb Wright once received as his share of one night's fishing alone 1,900 shad. In those days a right in a fishery was worth from \$10 to \$20, while once in a while such a right was held at as much as \$100.

To the holders of these rights the returns apparently were large. One Jonathan Hunlock's half interest in the Hunlock Fishery was considered worth from \$500 to \$600 a year. Others ran from \$300 to \$400 a year, while sometimes from \$30 to \$40 a night was taken in by fishermen. These fisheries netted some \$12,000 annually.

Not long before the migration of the shad was prevented by the damming of the Susquehanna there were about 40 permanent fisheries between Northumberland and Towanda.

At Northumberland, or just below, was Hummel's Fishery. Between Danville and Northumberland there were eight fisheries. Then there was another

(Turn to page 25)



PHOTO BY BOB MOTTER

which time buildings, farm produce, and personal effects were destroyed by fire or carried away as plunder. Everyone suffered.

For much of this time the Connecticut settlers had to live almost altogether on fish caught in the river. Sometimes it was difficult to obtain even these for, according to records, it was a matter of bitter complaint in

of establishing a shad fishery. They raised the flax, their wives would spin and make the twine, and the men would knit the seine. With the river an average of 40 yards wide, the seine would be from 60 to 80 yards long.

The shad congregated mostly on shoals near the point of some island for spawning and there the fisheries were generally established. Shad fish-

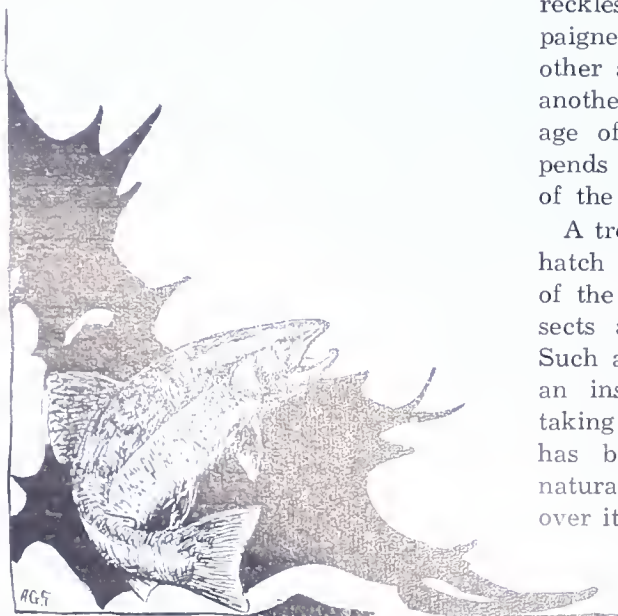
the rhythm of the rise

by albert g. shimmel

WHEN the angler goes trouting, particularly in mid or late season he hopes for a good hatch of insects. The belief that such a hatch was an omen of a heavy creel was gathered from the writings and practices of Father Walton himself and like many half truths have taken a firmer grip on the imagination of his followers throughout the years. The angler finds ideal conditions in a sparse hatch with trout actively feeding in water where the surface is broken enough to hide the artificial nature of the lure. The heavy hatch when every trout in the

stream is feeding gluttonously, when they move to the smoothest part of the feeding lanes and lie near the surface taking the bounty that comes their way with a minimum of effort leads the average angler to express his feelings with vitriolic profanity if nothing worse. An artificial no matter how artfully constructed or skillfully cast is simply lost in the multitude of naturals that pass the trout's lie. A poorly constructed or carelessly cast fly is simply ignored while the average trout continues to feed with seemingly reckless abandon. The wise old campaigner that would be the envy of other anglers, stops rising or moves to another feeding location. The percentage of hooked trout to the rise depends to some extent on the character of the rise and the lie.

A trout feeding on a sporadic or light hatch will usually lie near the bottom of the pool and rise to individual insects after observing them minutely. Such a fish will even turn and follow an insect several feet before either taking or rejecting it. Once the decision has been made to take either the natural or artificial the mouth closes over it firmly and the trout turns from



AFTER THE HATCH

The evening hatch is over and the dark
Slides down a stairway of the Veery's notes.
Above the hemlock's somber sol-houette
An insect-hunting nighthawk dives and floats.

My fern lined creel contains its brace of trout
And memories that will be mine evermore
My weariness approximates content,
From wading where the waters leap and roar.

It's not the trout I caught that bring me back
To cast the dainty fly on shadowed pools,
Or memories of the ones that got away,
Because I erred in following the rules.

The wild azaleas light an alter fire;
The incense fallen needles of the pine,
Soft melodies from organ breeze and stream
With alter cloth, aneddue's lacy line.

My humble thanks, Oh God of fisherman
Accept, and grant me now and then a day,
With true companions by the waters bright
Where laughter reigns and fellowship holds sway.

the surface. At such a time the angler can scarcely miss as the fish is actually assisting in the setting of the hook.

During the abundant hatch most trout lie just under the surface and simply tilt the body until the mouth is in position to take one or several insects at a time. Whether they close their mouths entirely except at intervals is an unanswered question. This may account for the many times anglers strike on the rise only to have the fly flick against the fish for a fraction of a second without taking a firm hold. "For every action there is a corresponding reaction." This law when applied to angling might be the result of habit. The angler sees a rise and places his fly either just above or exactly in the center of it much as a marksman tries for the ten ring on a target. The theory seems to be the quicker the fly is placed in position the quicker the rise. Now if the fly is so placed immediately after the rise there is a possibility that the combination disturbance caused by the rise and the

return of the fish to his position on or near the bottom will cause the fly to pass unnoticed. By the time the trout is ready for another bit of food the fly in all but the stillest water has floated beyond his range of vision.

Proof that an overabundant hatch may be a detriment rather than an aid to his sport has been proven by almost every angler, if he will go back through memories of past seasons. Two such experiences will serve as examples.

A number of years ago on the now famous Spring Creek, Centre County, the large Mayfly usually known as Shad hatched in great abundance. On the second evening of the hatch three better than average anglers took positions in a rather large pool. They watched the flight of shads drop from the trees and dance lower and lower until they began to settle on the water in the act of depositing their eggs. Few at first, then in greater abundance they came until the air seemed filled, the surface of the pool covered with them. An occasional trout slashed along the surface gathering them by the mouthful but mostly content to lie just under the surface and feed on what the current carried to them. For three quarters of an hour the pool fairly boiled with feeding fish. The anglers worked industriously. Then almost as if by magic the hatch ceased. Bodies of flies lay an inch or more deep in the eddies and still waters. The water was undisturbed except for the ripples as the three anglers waded ashore. Their lone victim, a brown of about a pound in weight. Four strikes, one other fish hooked and lost was reported. Yet it is safe to assume each had made at least one hundred casts to fish actively rising and undisturbed as trout can be when they are taking advantage of nature's bounty.

Now a percentage of four strikes and one fish for three hundred casts over rising fish does something to an angler's ego.

The second example came from an observation made at Fisherman's Paradise during a flight of blue gray flies of the midge type. It is conceivable that some anglers were handicapped by leaders that were too heavy or flies of the wrong size and color. Choosing a convenient location I watched some twenty anglers for an hour period. Within casting range of the anglers were over a hundred rising fish yet during that hour I observed only five fish were taken. Three of these fell to a single angler. By a very conservative estimate there were over twelve

hundred casts during the hour and only four fish. It adds up to a considerable amount of wasted effort.

The problem remained unsolved for a number of years yet it was continually coming up for discussion by a group of anglers with whom I associate.

One afternoon I chanced upon three anglers working a smooth, rather deep pool, on a limestone stream. Moss and water weeds had almost reached the surface providing excellent feeding pockets for fish and a decided hazard for the anglers. Overhanging willows and Silver Maples, drag of diverse slow currents, and water too slow and deep to wade posed a complicated problem. In spite of these factors numerous rings made by feeding fish kept the three anglers rooted to their respective positions. I had no sooner settled myself where I could observe the trio than a fourth appeared at the lower portion of the pool. He moved into position and waited so long that I turned my attention to the others. Each cast was made either to a rise or directly above it but the results were only exercise. Two were apparently satisfied with the fly they were using while the third changed regularly. I became so interested in him that I almost forgot the late comer when a movement drew my attention. He was fighting a fair rainbow and it was the flash of one of its leaps that drew my attention. Slowly he moved into a favorable position, netted the fish then gently returned it to the water. Moving up the pool to the next rising fish he paused, squatted against a convenient tree and watched the water through at least a half dozen rises. Getting to his feet he moved slowly into position, worked out line smoothly and dropped the fly, a swirl and he was fastened to another trout. One by one he hooked and played the rising trout with a regularity that bespoke complete mastery of the problem. That he lost several almost at the instant of the strike, did not in the least detract from his skillful performance. The other anglers moved back from the bank to observe. As he moved into position directly across the stream from my spot I noticed one thing that gave the clue to his almost perfect results. He watched the time between rises and counted silently to establish the rhythm of that particular rise. At least his lips moved as if he were counting. Once the time interval was established he moved into position and

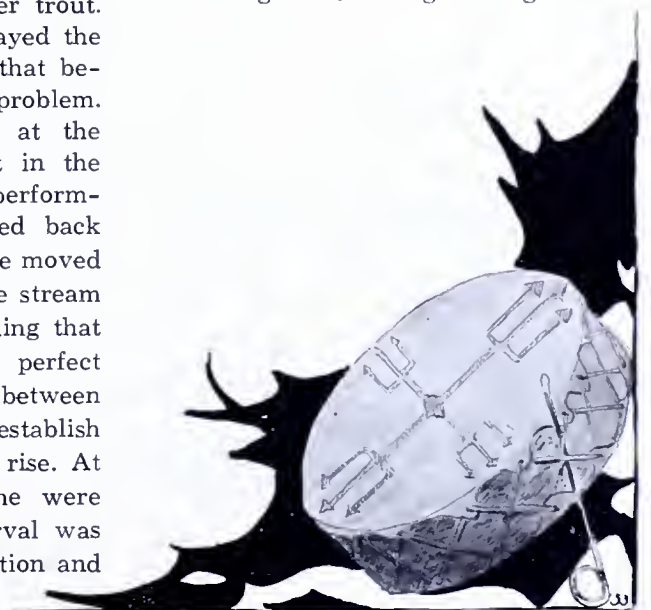
made the cast at the approximate time that trout was due to rise again, rather than at the rings that marked the completed rise. His skill at casting was above average, his equipment of good quality but it was the rhythm of his timing that brought the strikes.

Confident I had discovered his secret I moved downstream to another still pool to prove the truth of the rhythm theory. Six casts netted four solid strikes and an investigating refusal. During the next week I had two opportunities to experiment. In both tests the results were conclusive. The actual count averaged a trifle less than three strikes in four casts.

Relating the theory to several other anglers and asking them to make thorough tests they reported an average of better than fifty per cent. The best was made at Fisherman's Paradise when two friends casting alternately during a hatch of Iron Blue Midges touched ninety-one fish in one hundred casts.

As the tests progressed certain facts became evident. First; the heavier the hatch the more regular the time interval between rises of individual fish. Second; the variations in the time element was shorter for smaller trout and greater with the larger ones. It seemed after testing, one could almost distinguish the larger trout by the longer time interval. Third; while trout seem to be less wary in the presence of large quantities of food it required fine terminal tackle and good imitations to bring results. Fourth; the most effective flies were those that floated low with the body supported by the water rather than riding high on its hackle tips after the manner of spiders and variants.

Give the above methods a thorough trial—it may help solve the problem of taking trout during the big hatches.



nymph fishing notes and notions

by

chauncey k. lively

MANY volumes have been written about the romance of dry fly fishing in all its phases. Dry fly fishermen since the days of Halford and Gordon have been thrilled to the arching rise of the rainbow in fast water, to the gentle dimpling of the brown, and to the reckless, explosive smash of the brookie. That the popularity of this sport is justifiable I can attest for I am among the great number of its enthusiasts.

Yet equally thrilling to me is the probing of the unknown; the searching of unseen depths with a hidden fly in quest of giants of the stream that singularly refuse to be lured to the surface by the dry fly. The strike is often a deceptive thing, seemingly calculated to catch the angler off guard, for the biggest trout sometimes take the sunken fly with a gentleness that is entirely out of keeping with the size of the fish. It induces an aurora of mystery and uncertainty, for one never knows—for a few breathless moments—exactly what has taken his fly. These are the exciting elements in the subtle art of nymph fishing.

Unfortunately, nymph fishing has been so closely allied with conventional wet fly fishing that many fishermen include a few random nymphs in their kits merely as “a few extra wet flies” and they are fished accordingly—often with disappointing results. While it is true that occasionally wet flies and nymphs can be used interchangeably with success, they are nevertheless two distinct phases of angling and should be treated as such.

Several years ago, on a famous Pennsylvania stream, I had an opportunity to watch a wet fly fisherman match wits with a particularly industrious trout. My vantage point was under a tree on a high bank where I had taken refuge from a drizzling summer rain, and I could see clearly the drama which unfolded in the pool below me.

The fisherman was casting his fly (a Black Gnat wet, I believe) obliquely downstream and twitching it back in short jerks through the lower end of a run where a good trout was swirling at regular intervals. The fly was being manipulated skillfully in the best traditions of orthodox wet fly style and I fully expected that it would only be a matter of time until the trout would take it. Suddenly it occurred to me that much more was taking place than was apparent in casual observation, for out of the corner of my eye I saw a flash down deep as the trout streaked toward the head of the run.

Here a little puff of muddy water would appear, followed by another flash down deep as the trout hurried back to the tail of the run to resume his swirling. As I watched, the whole procedure began to take the form of routine—and became even more perplexing to my uninitiated eyes.

Finally, as I watched, the puzzle began to resolve itself. The trout was rustling up his own meal by nosing up stones at the head of the run, dislodging nymphs—and creating the little clouds of muddy water in the process. Then, I reasoned, he'd rush downstream to his feeding position and pick up the nymphs as they drifted down to him—just like shaking apples off a tree.

Meanwhile, the fisherman's frustration was mounting as the trout continued to ignore his fly. He stood it as long as he could and finally moved on to try other pools upstream. The trout was feeding as busily as ever and I lost no time scrambling down the slippery bank to take up my stand by the pool.

In my kit were three new nymphs, recently acquired but as yet untried, and this seemed to be an opportune time to try one. The choice of one of the three flies was made in the logic typical of fishermen; I picked a flat, brownish one because it looked “buggy” to me. This was tied to my leader point and cast upstream to the head of the run. It had drifted perhaps eight or ten feet when, to my complete amazement, the floating line suddenly stretched taut and I was fast to the fish. Subsequent netting proved it to be a two pound brown of sixteen inches—and chock-full of nymphs.

This was my first experience in nymph fishing and, needless to say, I was quite elated over its possibilities. It didn't take long to find, however, that the nymph wouldn't lure a two pound trout to every cast.—Far from it. But I did learn, in my fumbling way, that a really good nymph, fished properly, will take trout from the first day of the season to the last.

Nymphs are a staple in the diet of trout in most streams and as such, they comprise much of the food taken. Some authorities claim nymphs make up 85% of the food eaten by trout. But whatever the actual percentages may be, a cursory examination into the stomachs of your daily catch will be enough to convince you of their importance.

While there is a great variety of nymphs in our trout streams, the more common ones are a drab, neutral color

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(usually dark), with a definitely flat body. The trout are well acquainted with these and the wise fly fisher will profit greatly by their imitation.

A few years ago, in an effort to imitate this *average* appearance, I hit upon a happy combination of materials and a unique method of tying that resulted in a weighted, flat-bodied nymph that has proved more versatile than any I have ever used. It is called the Condor Quill Nymph and its dressing is as follows:

Hook—Size No. 12 Model Perfect—3X or 4X long.

Underbody—Two strips of .025 lead wire cut slightly shorter than hook shank. Cement one strip on either side of hook shank and bind with 6/0 thread. Taper wire slightly at rear of hook.

Tail—Two fibers from ringneck pheasant tail, tide to flare.

Abdomen—Unstripped condor quill—wound closely but not overlapped.

Wing Case—Section of gray goose quill—about 3/16" wide. (Tie in on top of hook shank, facing tail. Proceed to next step.)

Thorax—Loose dubbing of dun beaver or natural seal fur. Tie fairly full to give a slightly humped appearance. (Tie in dubbing over butt of wing case, wind forward and tie off at head. Bring free end of wing case up and over thorax and tie off at head.)

Hackle—Partridge or grouse—tied as throat hackle.

Whip finish and lacquer head and wing case. (Note:—if unweighted nymph is desired, nylon shanks of similar diameter may be substituted for lead strips.)

Nymphs are great favorites for early season fishing when the streams are high and the water temperatures are low. However, their effectiveness at this time depends much on the ability to get them down to the level of the fish. The self-weighted nymph is generally not heavy enough to sink to the bottom in heavy water and the addition of lead to the leader becomes necessary. Trout are prone to lie near the bottom of deep pools when the low water temperatures of the early season prevail, and their reluctance to move about makes it essential to bounce the fly along the bottom—literally brushing the noses of the fish.

The Martinez black wooly worm is an excellent early season fly when the water is high and off-color—particularly if it is fished deeply and slowly. While this fly is not a nymph

in the strictest sense of the word, it is fished as a nymph and thus qualifies as such. I don't know whether the trout take the wooly worm for a cased caddis or perhaps a heavy dragon fly nymph but it has taken its share of fish when conditions would seem to indicate only live bait. Paul Young's strawman nymph is also an effective imitation of the cased caddis. The smaller flat-bodied nymphs are great early season killers, too, if the water is clear enough to warrant their use.

A few weeks later, when the water has warmed up a bit and fly hatches are beginning to progress, the mayfly nymph imitations such as the condor quill nymph really begin to come into their own. By now the trout have become much more active in their feeding and they are beginning to take their food from the surface as well as along the stream bottom. This is the time the dry fly fisherman has been so eagerly awaiting and I can be a bit sympathetic if he goes all out for the floater to the virtual exclusion of other methods. However, if he can constrain himself to make opportune use of the nymph as a supplement to the dry fly he will find its use rewarding, for there are periods during even the peak of the dry fly season when the fish prefer the nymph to the floating dun.

Nymphs become active directly preceding a hatch, and the nymphs that are about to emerge into duns swim about nervously for a while before making their final ascent to the surface to become adult insects. The trout feast royally on them at this time and this is one of the best times of all to fish the artificial nymph. Generally, the trout turn their attention to the floating dun as the hatch develops in intensity, but it is interesting to note that occasionally the duns are completely ignored throughout the hatch and the nymphs are taken exclusively. This condition seems to occur more often in some streams than in others, but when it does happen, a well fished nymph can be deadly.

Early June offers the cream of dry fly fishing in central Pennsylvania and, being geared for some high powered fishing with the floaters, I was com-

(Turn to page 26)

.025 Lead Wire



Lead Wire Strips

(1)

Pheasant Tail
Fibers(2)

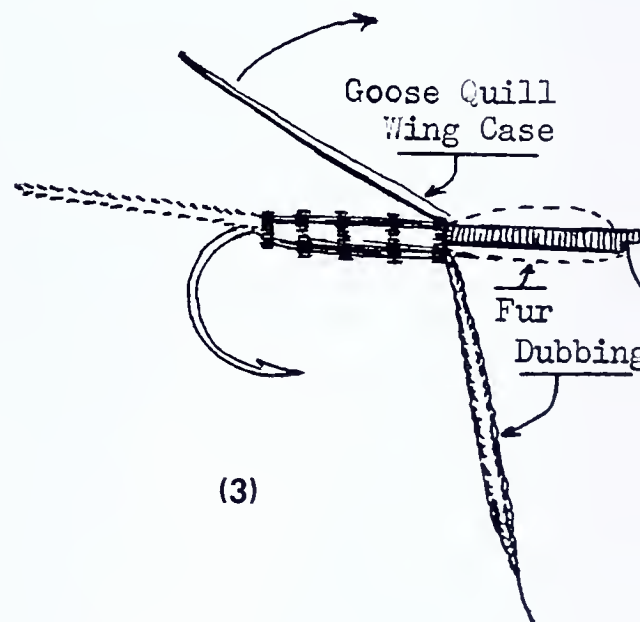
Condor Quill



(2)

Goose Quill
Wing Case

Fur
Dubbing

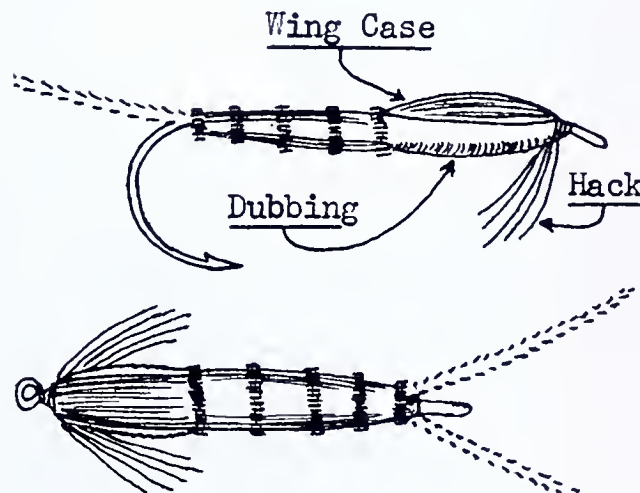


(3)

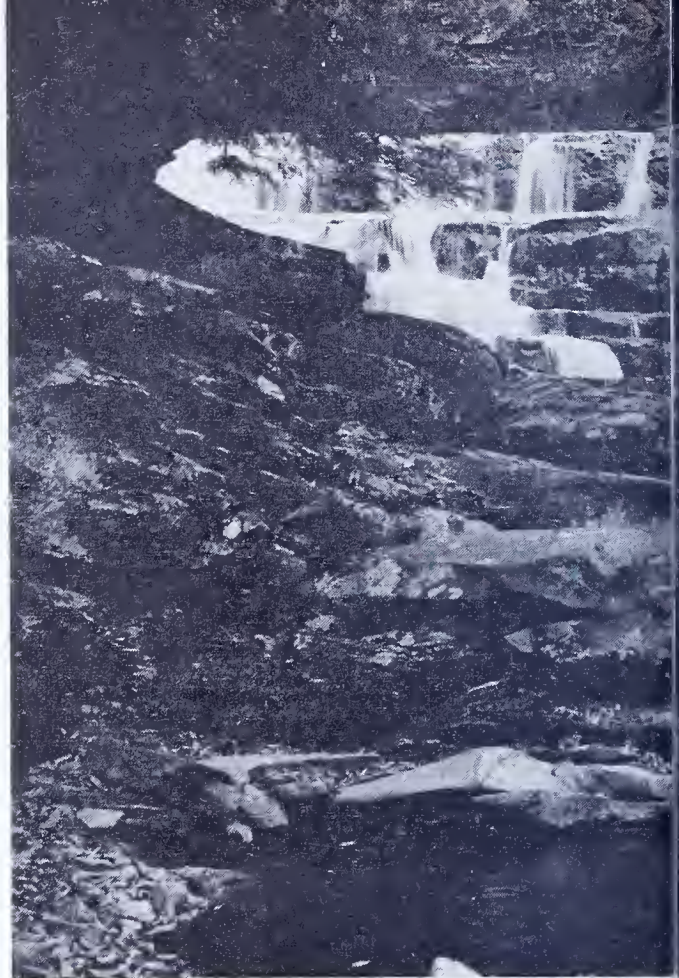
Wing Case

Dubbing

Hack



(4)



Third Falls on the Wapwallopen Creek

**Beautiful Falls on Pond
Creek in Luzerne Co.**



DON SHINER PHOTO



beautiful

PENNSYLVANIA

streams

ounty.

DON SHINER PHOTO

LA MAR MUMBAR PHOTO



**The famed Broadheads Creek near
Canadensis, Monroe County.**

LA MAR MUMBAR PHOTO



**Familiar waters of Big Creek,
Carbon County.**

Fly Tying

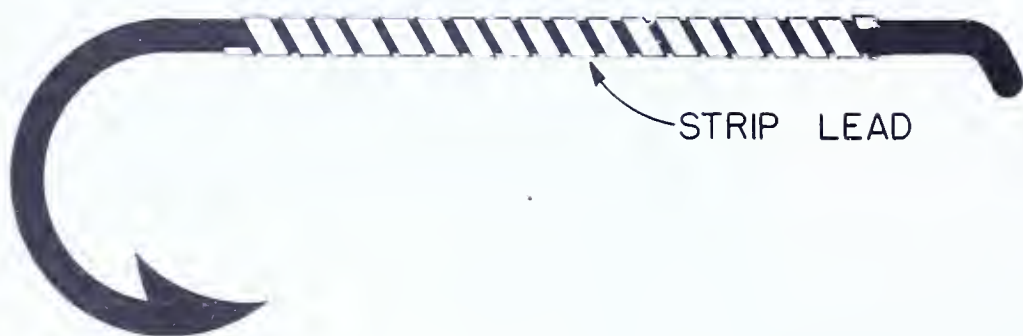
... via simplified methods

PART V

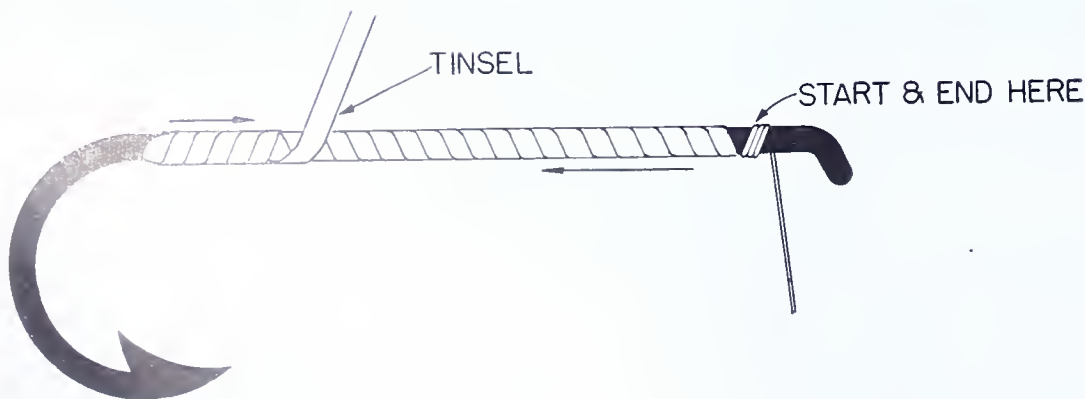
By GEORGE HARVEY

Associate Professor, School of Physical Education and Athletics
The Pennsylvania State College

Illustrated by James E. Cartey



WEIGHTED BODIES (35)



TIE IN TAPERED
END OF TINSEL

(36)

THE STREAMER FLIES

THE feather and hair winged streamer flies are probably the most interesting for the beginner to tie. Many patterns are quite gaudy insofar as colors are concerned and really eye-catching in their beauty. Practically every conceivable combination of feathers and hair has been used to construct these flies, and the beginner can experiment at will. Strange as it may seem to some, it will be practically impossible to tie up any creations that will not take fish.

The streamer flies are usually tied on long shank hooks. No particular size or length is standard because in different localities and waters, larger or smaller flies are in order. The shorter winged streamers are popular in Pennsylvania; but in New England the same pattern tied on the same size hooks will have wings nearly twice as long. I suppose the reason for this is because the minnows that supply the bulk of the food for fish in New England waters are longer than those in Pennsylvania waters. Of course, there are many fancy and highly colored patterns that do not imitate anything and are, no doubt, taken by fish simply out of curiosity. These should really be called attractor flies. The streamer flies are by far the most versatile type of fly known today because any fish that will take any artificial lure can be caught on a streamer fly. This not only applies to fresh water fish but to all the salt water species as well.

These flies are effective because of the undulating action they produce when wet. It is well for the beginner to keep this in mind because if the fly is dressed too heavily, much action is lost. This loss of action is especially true with the hair winged streamers.

Diagram No. 35

Many streamer flies are tied with weighted bodies. Strip lead is generally conceded to be the best because it is flat and easy to work with. Any weighting material that is not flat makes the winding of smooth, ridgeless, tinsel bodies difficult. Lead may be purchased in sheets and cut into various widths suitable to the hook size. The lead may be wrapped compactly, or slightly spaced as in Diagram No. 35. The spacing you use depends upon the weight you desire to have in the finished fly. The lead may be wrapped on in precisely the same manner used in the building of bodies previously described. However, I prefer to spin on

PENNSYLVANIA ANGLER

the strip lead, hence will describe this method only because I feel it is the quickest and best.

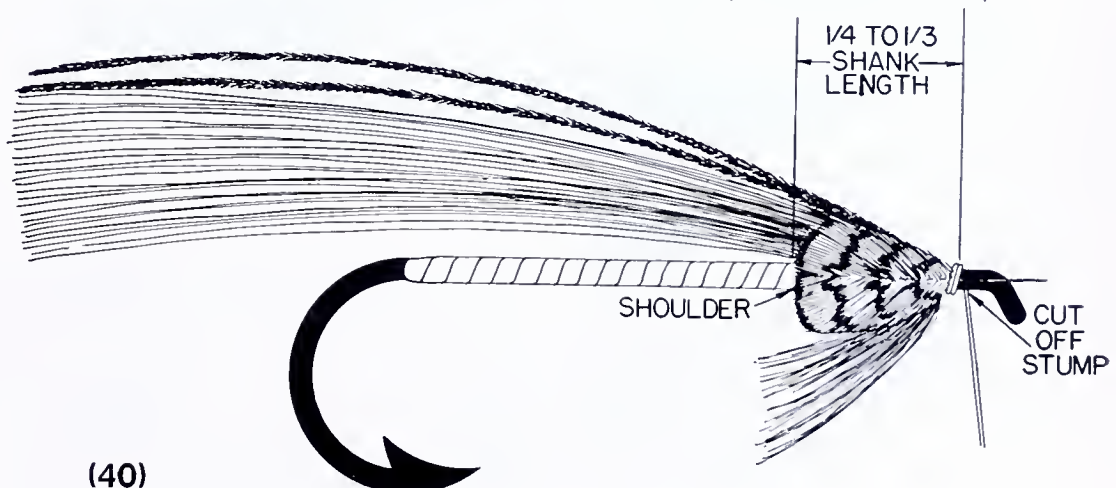
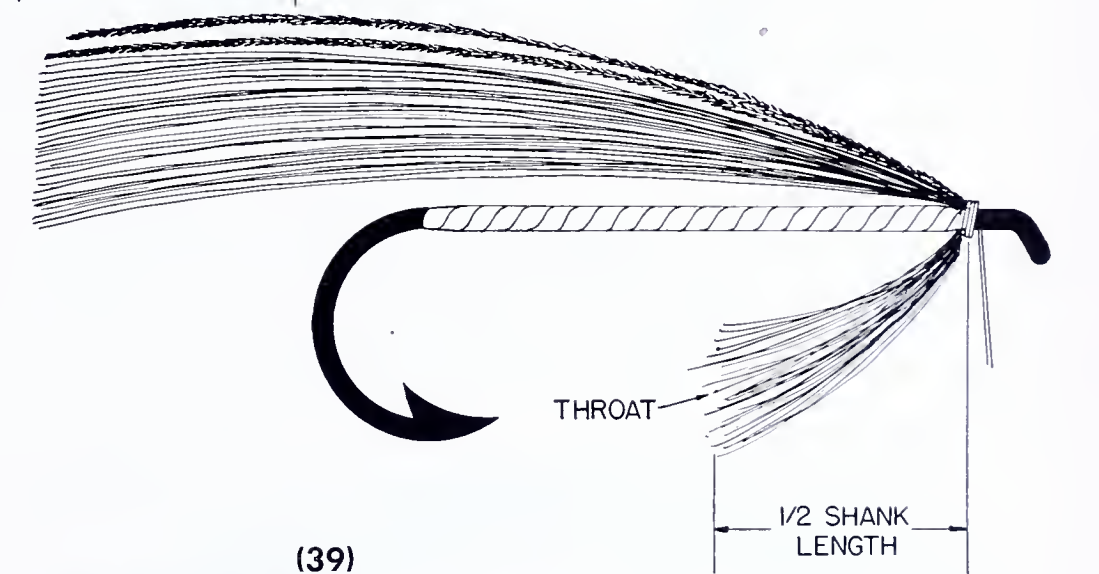
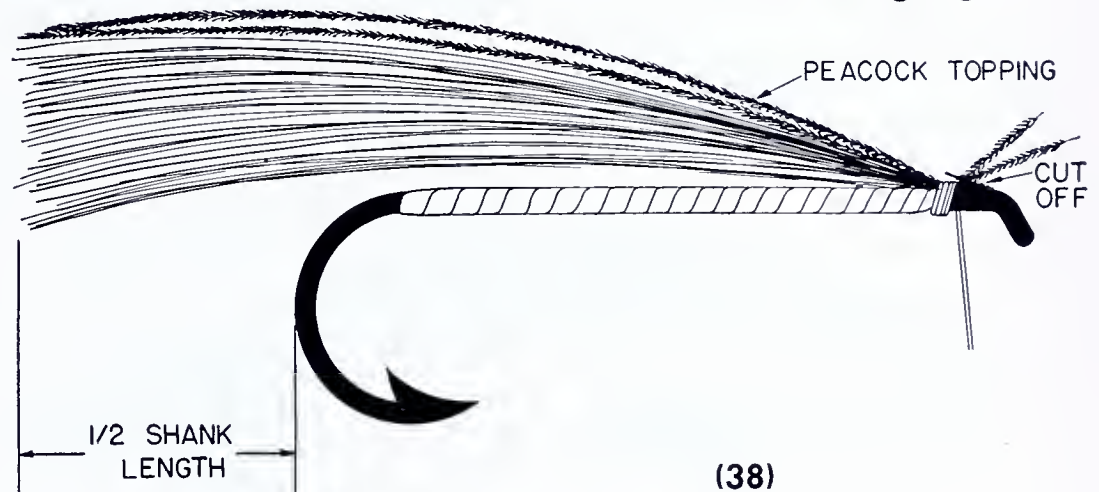
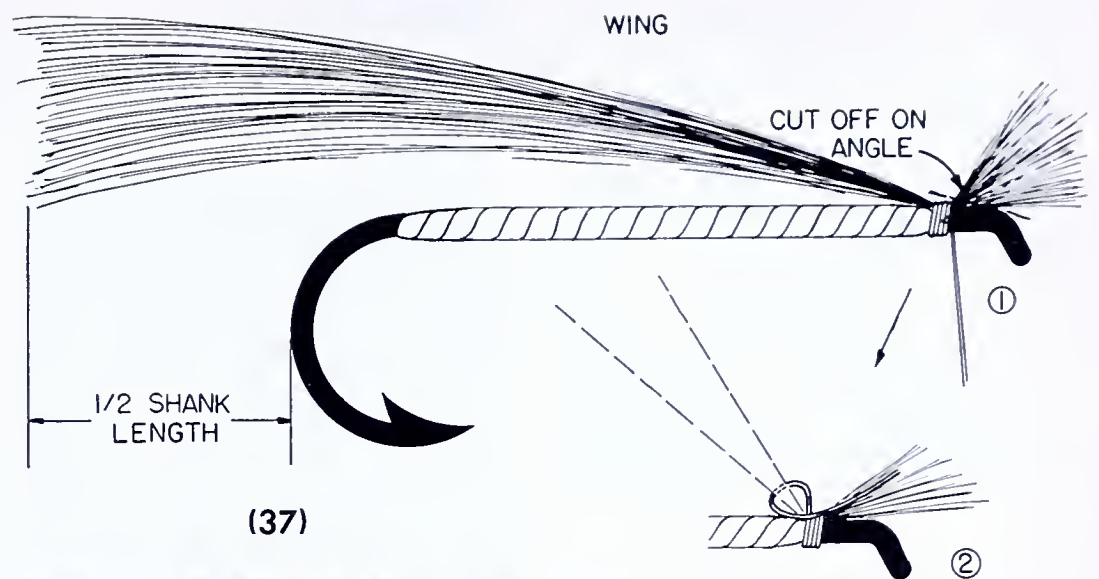
Grasp end of lead between thumb and finger of right hand, and hold lightly a bit farther back with left hand. Twist end in right hand one or two turns counter-clockwise around shank of hook just back of the eye. Now the lead is started. Keep feeding lead with the left hand and spinning counter-clockwise with the right-hand thumb and finger until you have the shank of the hook covered as in Diagram No. 35. Do not run the lead all the way back to the bend, or up close to the eye. Secure the tying thread back of the eye, then take a few turns over the first turn of lead, back of the eye, to secure the lead and keep it from spinning when the body is wrapped over it. All bodies with the exception of tinsel bodies are tied and wrapped on in the usual manner.

Diagram No. 36

Diagram No. 36 illustrates the technique used in winding on the tinsel body. First, cut one end of tinsel to tapering point. This end is tied in at point marked "start" in diagram. This tapered end makes it much easier to start winding the tinsel smoothly. Just to convince yourself, try tying in tinsel with square end and see how it is nearly impossible to start winding tinsel without causing a hump. Wind tinsel clockwise and close together over the lead base up to the bend of the hook; then return, as diagrammed, to starting point and tie off in the usual manner. If the tyer is going to tie several flies of the same pattern, it will save time if he ties all the bodies first. This is the procedure most professional tyers use. Of course, they may tie several hundred dozen of the same pattern.

Diagram No. 37

Diagram No. 37 illustrates the method of tying on the hair wing or bucktail type streamer fly. It is rather difficult to suggest an exact length for the streamer wing because in different localities the length of wing varies. I believe the most popular length is about one and one-half times as long as the shank of the hook. Cut section of hair near roots and hold by tip ends in left hand. With right hand pull out all short hairs and fur. Now hold by butt end and pull out long hairs, and put back in bunch so as to keep tip ends as even as possible. If you do not have an idea of the amount of hair to use for this wing, I suggest you purchase a hair-wing streamer fly to use as a model.



Hold hair in the same manner as was illustrated for the tail, and tie in as illustrated. After hair is secured, cut off excess on angle as (1). Hold wing up and wind tying silk around base as in (2), and continue making several more turns over wing in the usual manner.

Diagram No. 38

On some hair wing patterns, topping is used. Quite often this may be peacock herl or golden pheasant crest feathers, but many others may be used, depending entirely upon the pattern. Tie in as illustrated in this diagram (No. 38) and cut off the excess.

Diagram No. 39

The throat on the streamer fly is usually fibers from a large hackle, but fibers from many other feathers are used, depending upon the pattern. The length of the throat varies but usually

does not extend beyond the point of the hook. It will probably be easier for the beginner to take the hook out of the vise and turn the bottom side up before tying in the throat. It may be tied in by the same method as the tail. The experienced tyers never change the hook, but hold the material under the shank and tie it in from the bottom. I will describe this method. First, select material and cut to the desired length. Straddle shank of hook with thumb and finger of the left hand. Pick up throat material with right hand and transfer to thumb and finger of left so that the tip ends of the fibers point toward rear of hook, and stump end is at position where it should be tied in (right below wing). Bring tying thread down between finger and throat material, then up on the opposite side between the thumb and throat. Squeeze thumb and finger together and tighten

by pulling up. This is just the reverse of the procedure used to tie in the tail.

Diagram No. 40

The shoulder, cheek, or eye are all tied on in the same manner. Select two feathers with identical markings and as near the same size and shape as possible. Strip off the fibers until the feathers are the desired size. Do not cut off the quill or mid-rib. Hold on side, and tie in by securing quill at point where fibers start with several turns of the tying thread. Now take hold of mid-rib and gently pull feather in to desired position as illustrated in this diagram. It is a good idea to pull the shoulder feather far enough so that a few of the fibers are just under the tying thread. This will help keep the shoulder from turning or twisting out of position. Follow same procedure for the other shoulder. Cut off excess stumps and complete by winding on enough tying thread to cover all visible material, and to give a nice smooth head. Finish in usual manner, and lacquer head any desired color.

Diagram No. 41

The feather wing streamer is one of the most popular and one of the best "fish-takers" of all streamer flies. I believe one can more closely imitate many of the natural minnows with this type of fly because of the wide variety of feathers and numerous-colored hackles one has to choose from. In addition, the undulating action produced by the saddle hackle is very lifelike and, as a result, presents a very tempting lure for the fish.

Saddle hackle—the long, tapering, fine-quilled, or mid-ribbed hackle that hang down on the flank of a mature cock bird—are the best feathers for this type of fly. If none are available, the large neck hackles may be substituted. I would recommend, when using the neck hackle, to select necks that have slender-quilled hackles if possible. The heavy quilled hackles do not have nearly the undulating action, when fished, and are harder to work with.

First build body, then select matching hackles for wings. I usually use four hackles, two on each side, with the concave sides facing each other. Be sure to have ends even. Strip off excess fibers from stump end until you have the desired length. Hold in exactly the same manner as when tying in the tail. All other steps are the same as previously described.

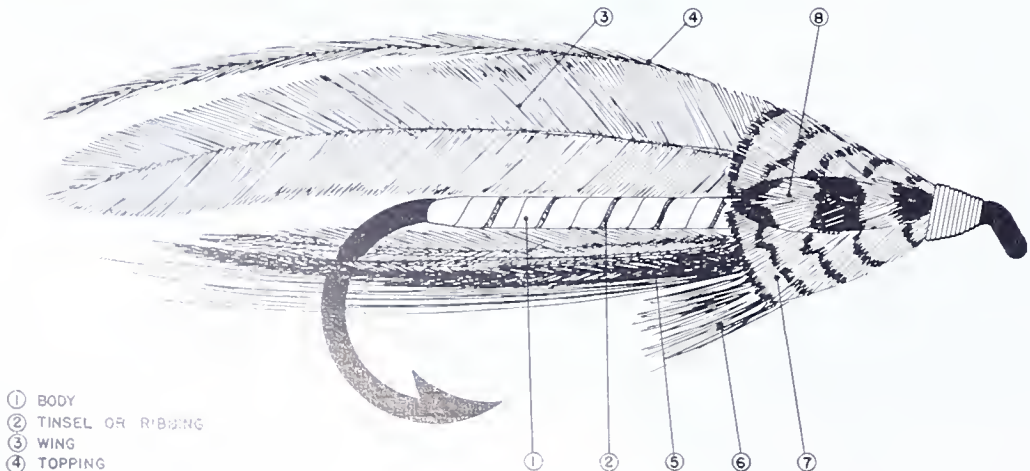
(Turn to page 23)



(41)

STREAMER

COMBINATION BUCKTAIL & STREAMER



- ① BODY
- ② TINSEL OR RIBBING
- ③ WING
- ④ TOPPING
- ⑤ BELLY
- ⑥ THROAT
- ⑦ SHOULDER
- ⑧ EYE

GRAY GHOST

(42)

ORDER IN WHICH MATERIAL IS TIED ON

THE Basic problem of dry fly casting has changed very little since Dame Juliana Berners wrote her "Treatyse of Fysshynge Wyth an Angle." To-day, as then, the problem is to present an artificial fly to the trout so that the fly will float in perfect harmony with the current and, happily, to deceive the fish into thinking it is a natural. To achieve this end result, dry fly anglers have perfected a hundred complicated casts: right hooks, left hooks, slack cast, and roll casts, tower casts and snap casts, to say nothing of the reverse cast in which the angler actually turns his back to the stream and his trout!

Added to these now is a new type of dry fly cast which I worked out to meet the difficult problems of getting a good float in conflicting currents which usually exist in streams.

More than a dozen expert anglers have watched me use this cast and have adapted it themselves. I think they are too enthusiastic when they say it may supplant many of the old complicated hook casts and upset a lot of established dry fly procedures. However, I have found that with this cast I can ignore many of the more or less complicated methods of casting—and take fish. For example, instead of casting in the approved manner from quiet water into swifter water, this cast allowed me to cast across the swift water and drop my fly into the comparatively quiet water and to get an unusually good long float. Approached thus, this area is usually the "hot spot" in most streams. Besides, this cast can be used with a roll cast, which I believe can not be said of any of the hook casts.

I have called it the Lazy S cast because the line makes a series of SSSSs which lie, lazy-like, on the side.

This Lazy S cast is extremely easy for the average fly fisherman to learn. The dry fly angler lifts his line off the water in the conventional manner and throws it high in the air behind him with a short but powerful back cast which stops at about half past one, and then as he drives the line forward—still in the orthodox manner—he stops the rod at 11 o'clock and as the line loops forward, he waggles the rod from side to side quite vigorously while he lets the line slip forward through his fingers. This cross waggle puts a series of SSSSs into the line and this waggle can be continued if necessary while the tapered line is still shooting through the guides. When these Lazy SSSSs fall on the fast water

they are washed out by the action of this more rapid current while leaving the dry fly to float independently on the quieter water.

I had the pleasure of making a rather dramatic presentation of the Lazy S cast on the North Platte river of Colorado two summers ago. The North Platte is a high meadow stream and the water glided smoothly. A feeding trout dimpled the water under some overhanging willows almost directly across the stream. After wading out, there were still 65 feet of this mirror-topped water intervening. For the benefit of Steamer Brannon who was with me, I first made a conventional cast with a slight left hook and my full palmer, Gantron-dressed light Caddis, No. 16, dry fly (tied by John Kolzer, Blue River, Oregon), floated high and dry over the trout. No response. As my fly dragged out, I retrieved it as gently as I could and, happily, the fish kept dimpling the water.

"Gosh," said Steamer fervently, "that should have gotten him."

"Watch this one," I said with perhaps a greater show of confidence than I should have.

Then I put down my Lazy S cast dropping a dozen elongated SSSSs on the swifter mid-channel between the feeding fish and me but this time, although my light Caddis alighted in almost the same spot, it remained motionless while the SSSSs washed out of my line! Actually there was no surface current where the fish was feeding and my first dry fly had been dragged out immediately, however imperceptibly to Steamer and me but certainly not to the trout. But this time the reward was not lacking. The trout sucked under the fly and I was fast to a scrappy deep 14-inch brown.

I repeated this cast throughout the day many times—and Mr. Brannon was amazed at the control I was able to obtain with the Lazy S cast. Certainly it was much more accurate and the effects were much better than using the conventional method of overcasting the spot, stopping the rod mid-air, and having the end of the line spring back. And more gratifying, the long floats the Lazy S permitted, without drag, produced trout.

Once the basic rudiments of this easily-learned cast are mastered, there are many refinements. The SSSSs can be made large or small, befitting the water. Where the currents are highly conflicting, the large SSSSs seem better. These can be made by casting the line in a larger, slower loop, shak-

a new dry fly cast

by
eugene burns

ing the rod cross-ways more vigorously. Smaller SSSSs are usually better for quartering upstream and can be put in the line by driving a tighter loop and waggling the rod more gently.

Better yet, with a little practice the angler can put the SSSSs into almost any part of his line he chooses—near the fly, near the centre of the line or near the angler, depending upon the swifter current.

Suppose the angler has waded out into swift water and 20 feet beyond this, against the bank under some willows, a large fish is feeding. Certainly he doesn't want a lot of SSSSs to fall on the quiet water near him. It would merely handicap him in striking the rising fish. The place for these SSSSs is strictly on the swift water where they wash out. To place the SSSSs properly in this instance, the angler waits until the forward cast is almost completed, then, almost belatedly, he waggles in a half dozen large SSSSs. Properly timed, they will fall on the

(Turn to page 28)

Resolutions affecting the Pennsylvania Fish Commission and Public Fishing in Pennsylvania which were adopted at the Annual Convention of the Pennsylvania Federation of Sportsmen's Clubs in Harrisburg on Saturday, March 21, 1953.

NC. Whereas: The Pennsylvania Game Commission and the Pennsylvania Fish Commissions are supported, controlled and maintained from monies wholly from the sale of the respective licenses as issued by the department of revenue, and

Whereas: The Department of Forests and Waters is supported and maintained from monies derived from public taxation, as granted by the Pennsylvania State Legislature, and

Whereas: We feel that a consolidation of the three agencies, if combined into one commission, would eventually lose the state grant which is now supporting the Department of Forests and Waters and the burden of maintenance would fall on the monies derived from the hunting and fishing licenses, now

Therefore Be It Resolved: That the PFSC be firmly opposed to any legislation in the future which might lead to the eventual consolidation of the above named agencies under one head.

65. SE. Whereas: Pennsylvania sportsmen are adverse to any and all efforts of any individuals to in any way make the game or fish funds available to the disposal of any agency other than the Game or Fish Commission, now

Therefore Be It Resolved: That any consolidation of the Game Commission and/or Fish Commission with the Department of Forests and Waters be and hereby is opposed by the Pennsylvania Federation of Sportsmen's Clubs.

66. C. Whereas: The little Hoover Commission recently appointed by the Governor has recommended that in the interest of economy, many departments, including the Fish and Game Commission, be placed under one head.

Whereas: The money for expenses of the Fish Commission and the Game Commission are self supporting through their respective licenses.

Therefore Be It Resolved: That each of these departments function separately in order that the best interests of the sportsman will be served.

NW. Whereas: The present law closing trout streams from March 15 to April 15 prohibits sucker fishing at the junctions of such streams with such rivers and creeks as French Creek, Allegheny, Clarion, Shenango and Monongahela rivers, depriving children

and aged persons from fishing at such junctions which has been enjoyed at that time of year in all past years, now

Therefore Be It Resolved: That the PFSC recommend that said law be amended to close said trout streams down to a point 500 feet from their junctions with rivers and creeks in the class above named, and with all streams and creeks or portions of such streams, not stocked with trout.

S. Resolved: That the special amendment of the fish laws passed by the 1949 legislature and amendments thereto by the 1951 legislature be changed to read as follows: All fishing is prohibited from March 14 to April 15, in any waters stocked with trout.

1. In this connection the phrase, "waters stocked with trout by the Fish Commission" shall be defined as meaning such waters as are themselves actually stocked with trout, and shall not be construed to include waters to which only the tributaries, feeders, outlets, or inlets have been stocked.

2. Not less than 30 days prior to March 14 of each year, the Fish Commission shall advertise, throughout at least one popular newspaper, and all license issuing agents in each county affected, all such waters the Commission has stocked, or intends to stock, before April 15.

SW. Whereas: It is becoming more and more difficult for fishermen to gain access for boat launching on the Allegheny River due to property owners refusing trespass for this purpose, and

Whereas: There is a growing fisherman population against diminishing points of access for boat launching and there is a danger of total loss of access, now

Therefore Be It Resolved: That the Fish Commission or other appropriate agency, singly or in collaboration, shall cause to purchase or lease points of access for the purpose of launching small boats in all navigable waters of this Commonwealth, and

Be It Further Resolved: That these points of access shall be of sufficient area to provide for parking of motor vehicles.

SE. Resolved: That the State Federation appoint a study committee to review the leases rights of ways and pur-

chase agreements employed by the Fish Commission in acquiring public fishing waters.

NE. Whereas: The present laws governing the use of motorboats in the public waters of the Commonwealth of Pennsylvania are inadequate and in some instances unenforceable, and

Whereas: The apparent trend is toward higher powered and faster boats, and

Whereas: The size of the water area upon which the motorboats are to be operated is not considered in the present law, and

Whereas: Anyone regardless of age can operate any size motorboat without any license or proper regulation, and

Whereas: The use of motorboats unrestrictedly can cause definite loss of fish through disregard of the operator as to speed and proximity to shore line, now

Therefore Be It Resolved: That the Joint State Government be requested to formulate a new Motorboat Code in which the above mentioned facts be given consideration and the use of motorboats in the waters of the State be governed to the greatest advantage to the greatest number. With due consideration to the size of the water area, the power and speed of the boat and the age of the operator.

NE. Whereas: In Hickory Run State Park, Carbon County, frequented annually by thousands of sportsmen, and visitors, Mud Run, one of the finest streams in Pennsylvania, and traversing this park for a distance of 2.66 miles, has not been stocked with fish for four (4) years, now

Therefore Be It Resolved: That in the future all lakes, ponds, streams, canals and rivers of Pennsylvania State Parks, State Forests, State Game Lands, and other said public lands, be stocked under the supervision and management of the Fish Commission, with a species of fish suitable to the habitat by the Pennsylvania Fish Commission.

C. Whereas: The increasing number of fishermen and the decreasing mileage of trout streams has made the unlimited catching of these game fish very undesirable to the majority of trout fishermen.

Therefore Be It Resolved: That there be a season limit on trout, said limit to be fixed by the Fish Commission.

SE. Resolved: That the PFSC reaffirm its previous action to support the organized sportsmen of the State of New Jersey in their efforts to make

striped bass a hook-and-line game fish only.

Whereas: "An act relating to fish and amending, revising, consolidating and changing the law relating to fish in the inland waters and the boundary lakes and boundary rivers of the Commonwealth" as last amended by the act approved the 3rd day of August, 1951, P. L. 1148, and

Whereas: This act has worked a hardship on the warm water counties, and

Whereas: It is the desire of this organization to have this act amended so that "All counties that do not have ten (10) miles of trout fishing streams, lakes or rivers, shall be open to fishing from March 14 to April 15.

Now Therefore Be It Resolved: That the Legislative committee be instructed to prepare a bill amending the Act of August 3, 1951, P. L. 1148, to the effect that all counties with less than ten miles of trout fishing on streams, lakes, or rivers be opened for fishing from March 15, at the discretion of the Fish Commission, and

Be It Further Resolved: That all trout waters closed in said counties be so posted.

Directors. Whereas: Sportsmen in Pennsylvania are losing more fishing water from vandalism than from new pollution, and

Whereas: There seems to be no adequate law to prevent it, now

Therefore, Be It Resolved; That the PFSC promote legislation to have the penalty for (a) destroying property and (b) discarding containers such as bottles and cans set at:

- (1) \$50 for the first offense, and
- (2) \$50 fine and loss of fishing license for at least one year for the second offense.

GENERAL

NC. Resolved: That we go on record to have Game Protectors and Fish Wardens Salaries increased.

SE. Resolved: That the PFSC appoint a committee of representatives from all divisions to sit with the Game and Fish Commissions to review and revamp the salary schedules of fish wardens and game protectors in order that said salaries shall be commensurate with present cost of living and wage standards.

FLY TYING—Part V

(From page 20)

Diagram No. 42

This diagram shows the order in which materials are tied on for a com-

Fisherman's Paradise Regulations

RULES AND REGULATIONS—SPRING CREEK PROJECT—SEASON 1953

1. **OPEN SEASON**—May 15th to July 18th, both dates inclusive.
2. **OPEN**—from 8:00 A.M. to 8:00 P.M. (Eastern Standard Time) or until Klaxon is sounded.
3. **ALL ANGLERS MUST PERSONALLY REGISTER BEFORE FISHING AND PERSONALLY CHECK OUT AND RETURN IDENTIFICATION BUTTON BEFORE LEAVING PROJECT. NO SUNDAY FISHING.**
4. **FISH IN THE POSSESSION OF ANGLER MUST BE DISPLAYED AND CHECKED AT REGISTRATION BOOTH WHEN CHECKING INTO PROJECT. FISH NOT SO REGISTERED WILL BE CONSIDERED AS HAVING BEEN CAUGHT ON THE PROJECT.**
5. **ANGLERS MUST PARK AUTOMOBILES BEFORE CHECKING IN AND MUST CHECK OUT BEFORE REMOVING AUTOMOBILES FROM PARKING LOT.**
6. **DAILY LIMIT**—Only **ONE FISH** may be killed. The Angler must stop fishing after **ONE FISH HAS BEEN KILLED.**
7. Only artificial lures of hair or feather construction with barbless hooks or regular hooks with the barbs removed may be used. No spinners or swivels permitted.
8. Fishing with, or possession of, any live bait, angle worms, meat, liver, or any other bait, is a violation of the rules and regulations.
9. **SIZE LIMIT**—All fish caught from large stream under 10 inches in length and on ladies stream under 7 inches in length must be carefully returned to the water.
10. All anglers holding a Pennsylvania Fishing License will be permitted to fish five days during the season.
11. The dressing or cleaning of fish on the property is prohibited as all fish must be weighed when checking out
12. **POSITIVELY NO WADING**—in the stream for any purpose permitted.
13. Sinkers or lures not exceeding the weight of 2BB Shot are permitted. No casting or spinning outfits permitted.
14. Feeding fish **PROHIBITED** except on Sunday.
15. Assisting in hooking or landing fish prohibited. All foul hooked fish must be carefully returned to the stream.
16. Violation of the rules and regulations will be subject to a fine of Twenty Dollars (\$20.00), revocation of your fishing privilege on the project for the balance of the season, and revocation of your fishing license.

If you like this project you can help the sportsmen of the state by obeying these rules and reporting any infraction to the officers.

Section 251 of the Act of May 2, 1925, as amended, provides the Pennsylvania Fish Commission with authority to promulgate such rules and regulations for the angling, catching or removal of fish in or from any waters of this Commonwealth as may be deemed necessary. Penalty for violation—(\$10.00) for each fish caught, taken or had in possession, contrary to these Twenty Dollars (\$20.00), and in addition thereto may be fined Ten Dollars rules and regulations.

bination bucktail and feather wing streamer. I will describe the Grey Ghost, with red throat added.

(1 and 2) Body is orange silk floss ribbed with gold tinsel. (3) Wing is four slate gray or blue dun matched saddle hackles. (4) Topping is golden pheasant crest feathers. (5) Belly is a term I use that is new to the fly-tying trade. I use it whenever any material is tied on the under side of a streamer that represents the belly of a minnow, and is approximately as long as the wing. The term, commonly used to describe this, "the throat," is not an adequate term because both "throat" and "belly" may be used on the same fly. The throat is really a beard-type

hackle, rarely extending beyond the point of the hook. Four strands of peacock herl are tied in first, then white and yellow bucktail. (6) Throat is red hackle fibers. This throat description is added for illustrative purpose only. (7) Shoulder is silver or zebra pheasant breast feathers. (8) Eye is jungle cock neck feathers.

This article concludes the series on fly tying. May all who have profited by this series spend many enjoyable hours at the fly-tying table, and may all your creations when finished give you many tight lines.

EDITOR'S NOTE: Mr. Harvey has kindly consented to do an article on bass cork and hair bugs for a summer issue. Readers will welcome this addenda.

MEMORIES OF CANAL DAYS

(From page 6)

ticking and assorted merchandise, the canal became an efficient freight artery. Toward the turn of the century it slowly declined, conceding defeat to the steam locomotive and the iron rails.

Many adventurous and romantic stories centered around these old waterways. Funneling the boating traffic of those early days, the canal was the scene of exciting activities for robust men and wide-eyed, barefoot youngsters. Ponderous vessels, measuring 80-feet long, loaded with as much as 75 to 100-tons of cargo, were towed through the canal with teams of horses and mules. Two and in some cases three boats were coupled together and a team of three to five mules labored strenuously pulling the heavy vessels.

Though the lead boat carried some cargo, it was fitted with a small cabin which served as sleeping and eating quarters for the crew. Here the captain made his quarters and did the cooking for the boatmen. The bowsman or tiller steered the vessels while a driver, a young lad eager for the adventurous life on the canal, drove the team of mules over the clay packed banks. The driving of the team is described in an early ballad of the Erie Canal.

"So haul in your tow-line
And take in your slack,
Take a reef in your breeches
And straighten your back;
Through sunshine and storm
Down the towpath we'll walk,
And we'll touch up the mules
When they kick and balk."

The canal was hardly more than 25-feet wide, but this narrowness offered no hardship when boat trains going opposite directions met in the canal. The boatmen simply slackened the tow lines to the heavy vessels, the lighter boats passed over the lines and continued on their way.

Loaded heavily with coal, lime and lumber, the boats sank deeply into the water. Eel grass was a constant hindrance to speed and taxed the endurance of the mules. Entire crews were assigned the task of keeping the weed growth mowed. Crews of five to six men stood on the edge of big mud flats and swung long-handled scythes from side to side under the water, cutting

the tall aquatic weeds. Old timers tell how livestock was left to roam on the farms and when the grass was cut to float down the canal, pigs would flock to the banks to feast upon the sweet foliage. Toward evening the farm women would venture along the canal, whistling and calling for the pigs to return home.

After trudging some 25-miles during a day, evening found the boating crew pulling into a layover station. There the mules were fed in muzzle bags and taken aboard for the night or placed in nearby stables. Letting the driver-boy to guard the cargo, captain and bowsman would occasionally wander into a nearby saloon for an evening of wine and song. Daybreak would find the mules harnessed and plodding over the tow path, the driver-boy at side, the steersman guiding the tiller, and the captain full of strange oaths, out of sorts with the slow progress through the locks.

The canal was not of one continuous depth but a series of locks lifting or lowering the boats to various levels corresponding to the height of the land. Hundreds of locks were scattered along the entire length of the canal, and *locking through* was the term applied to lifting or lowering the canal boats on their uphill or downhill journey. The locks were simply stone walls on opposite sides of the canal with gates at opposite ends. The vessels were pulled into these locks, gates and wickers closed until the water within raised or lowered the boats and allowed them to pass into another stretch of the canal.

As the vessels approached these locks, the boatmen would sound the approach with a long blast on a conch shell or boat horn. Tenders would get the locks in readiness.

People in the villages scattered along the waterway remarked how pleasant, during the summer months to hear, amid the starry darkness, the boatman wind his mellow horn in summons to the drowsy tender of the lock to make ready his approach. How the echo from the conch shell rolled between the hills! Clearly heard at distances of from three to four miles, the far reaching, pleading call was the signal for nearby youngsters to run and watch the boats pass through the locks, journey on their way. Old boatmen were masters at tooting these large sea shells and some could even play a fair tune with them.

It is said today that when fisherman visit the canal for catfish on dark,

stormy nights, with only the light of kerosene lanterns dimly lighting the shore, the resounding bellow of the conch horn can be heard as boatmen sound their warning to lock tenders years ago. Some say this is only the wind whistling among the tree tops high over the waterway, but who can deny boats and boatmen are not traveling this same waterway on misty nights just as they did in days of old?

All was not toil and work on the canal. There were moments of gaiety and merry-making plus many hours of good fishing. Boatmen tell how baited lines were trolled and husky suckers, chubs, catfish and pickerel were caught for breakfast or dinner. Tales are told too, of passing through villages where the farmers' ducks and geese were swimming in the canal. Some boatmen baited hooks with corn and dangled the bait to these birds. Fresh fowl was welcome on the evening meal menu!

Row boats were shoved into the canal on Sunday afternoons and grandma and grandfather, only youngsters then, spent hours drifting on the slow moving race perhaps planning their wedding in the local church. Moonlight rides on the canal had a bewitching air that made youngsters very susceptible to the whims of cupid.

The canal offered good fishing too; youngsters and old timers spent afternoons fishing, watching the boats go by. With grassy banks, shady willow trees and deep, inviting pools, it was one of the favorite fishing spots in those early days of yesteryear.

The approach of winter found the old canal drained and boats placed in huge basins for the dormant months. Tons of fish were gathered in the autumn as the last pools of water seeped away, but in spring, when the river was diverted into the canal, equal numbers of fish returned.

This draining of the canal was mentioned in an article published in the Berwick Enterprise Newspaper issued December 22, 1900.

"Perhaps for the last time the water was let out of the canal last week. For all the boating that has been done this season it was hardly worth while to let it in. In fact this statement applied with equal relevance to the proceeding three to four years. During the period with the coming of the winter and the closing of navigation it has been surmised each time that the old waterway was to be abandoned. But now it may almost be accepted as a reality. All the lock tenders have been



advised to accept, if offered, other more permanent positions, and this information together with the repeated threatenings of discontinuance leads one to think that the canal is now an industry that is to fade in history."

The canal business steadily declined after the upsurge of the iron rails and steam locomotive, was finally abandoned in the year 1904. Die hards and those who fought desperately to keep the shipping business alive refused to take their boats to the bay. Many of their boats were trapped in the canal as it dried after the last emptying of water. For years the boat hulls, mired deeply in mud, remained as ghostlike reminders of a lost transportation industry.

One cannot estimate the great part this old waterway played in the development of this state or even its stimulation to the sport of fishing. From the beginning of the canal days to the present time, anglers of all ages, from grandfather to grandson, visited the sluggish man-made stream. Youngsters played upon the grassy banks, swam in the deep pools shaded by overhanging willows and experienced their first joy in catching colorful sunfish, fat suckers and pickerel. Though many parts of the canal are now filled in and converted into everything from drive-in theaters to truck gardens, other parts are choked with weeds, brush and garbage. But long sections remain clean and offer surprisingly good fishing!

Evenings in the early spring and summer the tow path and sod banks are dotted with lights from kerosene lanterns of fishermen in quest of catfish, giving the appearance of a tiny sleepy village at night. July finds other anglers wading in the canal or walking along the clay banks casting spoons,

spinners or live minnows for pickerel and bass.

Long sections of the canal have attractive pools that hold pickerel, catfish, carp, sunfish, bass and eels. Though known to many fishermen, these sites are seldom spoken of for they remain as one of their secret spots where they gather afternoons to enjoy fishing in solitude. Indeed, many fishermen would rather let you smoke their favorite pipe than tell you of their fishing spot in the old "ragin canal."

Though today nothing churns the waters, the old canal is not forgotten. With the old boatmen holding annual re-unions at Rolling Green Park, tales and exciting moments of boatings and fishing in the old canal are told and re-told among veteran boatmen. But there are others too who will remember these old water ways, perhaps not for the boating activity, but as their secret rendezvous for afternoons of fishing. The railroads and highways have become the life-lanes of the old canal towns, but the canal will continue to live on, if only in the hearts of fishermen!

ROMANCE OF THE SHAD

(From page 11)

one about four miles above Bloomsburg, others below and above the town of Berwick, and still another at Beach Haven. Between this place and Nanticoke Dam there were three. Above Nanticoke, others were at Fish Island, the Wilkes-Barre bridge, at Mill Creek, at Monocacy Island, Wintermoot Island, Scovel's Island, and additional fisheries were scattered from here to Standing Stone, about six miles below Towanda.

At the eight fisheries near Northumberland 300 shad was a common haul, while some ran from 3,000 to 5,000. About the year 1820, the Rockefeller Fishery, just below Danville, gave an annual yield of from 3,000 to 4,000, worth from 12½ to 25 cents apiece.

The most productive fishery was the one just above Berwick. Here thousands upon thousands of shad were caught, and at the Tuckanow Fishery thousands of shad were caught day and night in the early spring.

So many shad were taken at the Webb and Boone Fishery that when a market could not be found for all of

them, they were hauled to Boone's farm and used as fertilizer to enrich the ground.

The annual catch at the Hunlock Fishery is said to have been more than 10,000. At Dutch Fishery, in one night, 3,800 shad were taken, while at the Fish Island Fishery nearly as many shad were taken once at a single haul as were taken at Hunlock's in a whole year.

Both at Wyalusing and Standing Stone, popular rendezvous of bass fishermen of this day, the annual catch of shad was between 3,000 and 4,000. Apparently the fisheries down the river were much more productive than those above. As the river was ascended, the shad appear to have diminished in numbers but to have increased in size.

Opinion of many during the shad fishing days was that the great size obtained by the Susquehanna shad was due to the long run up the fresh water stream—carrying the idea of the survival of the fittest. That they were of great size is beyond doubt, those caught at the fisheries in Northumberland and Montour Counties ranging from three to nine pounds.

Thousands of shad weighing from 8 to 9 pounds were caught in Columbia County and one weighed on a wager turned the scales at 13 pounds.

The price of shad varied, according to their size, from about 4 to 25 cents, depending upon their scarcity or abundance. In those days they would cost about as much as a pound of beef, a pound of tobacco, or a dozen eggs.

At the time the first dam was built in the Susquehanna, they sold for from 10 to 12 cents, and there is a record of a man who gave 20 barrels of shad for a good Durham cow. In exchange for maple sugar one good shad was worth a pound of sugar.

Every family along the river with any means whatever, had its half barrel or more of shad salted away each season, and some smoked shad hanging in their kitchen chimneys. The plentifulness and cheapness of shad benefited the entire Commonwealth.

Country folk from a radius of 50 miles came to the Susquehanna to get their winter's supply, people journeyed from the New York State line, from Easton, and from Philadelphia to get these splendid food fish.

Most of these people camped on the river bank, and brought with them whatever they had of marketable nature in payment as well as partial reimbursement for the journey. From the New York State line and Easton

was brought maple sugar and salt; from Milton cider and whiskey and a mixture of the two which, when imbibed even in moderate quantities, produced such violent intoxication that it was called "cider royal." The Quaker City folk brought leather, iron, and commodities of a like nature.

Sometimes residents along the Susquehanna River took their surplus catches of shad to distant markets without waiting for trade to come to them. A firm at Tunkhannock did quite an extensive business in shad, sending the cured ones up the river to New York State and down the river as far as Baltimore.

This firm cured large quantities of shad which they bought from the fisheries in the neighborhood. They had their difficulties, for salt was extremely scarce, only that available which was brought in wagons from the cities in the way of trade, or by the same kind of vehicle from the salt works at Onondaga, N. Y. So scarce was salt that a bushel of it would purchase 100 shad.

Aside from the people who traveled to the Susquehanna River for shad, and the residents there who took them to distant places for sale, nearly every boat which plied the Susquehanna took down shad, paid for in leather, cider, whisky, cider royal, salt, iron, and other material.

No deep sea fish appears to have gone up the west branch of the Susquehanna in such quantities as they did the North Branch, unless it be eels.

There has come down from colonial times a record of Indians, returning from a treaty at Philadelphia, who landed their canoes and borrowed from a farmer's wife a big kettle to cook their dinner. They built a fire under the kettle, put in shad just as they were taken from the river, and cooked it with beans, cabbage, potatoes, and onions.

The owners of fish houses had arrangements so that when they ran out of salt they could dry and smoke the shad, much as herring and salmon are now smoked and dried.

After the Susquehanna ceased to be a spawning place for shad, the Delaware River became probably the best shad river on the Atlantic Coast. The original Dutch and German settlers along the Delaware either did not know, or did not make use of the seine for fish catching until long after the Connecticut colonists settled in the Wyoming Valley.

It is possible, too, the English settlers

along the Delaware did not care for shad, for it is said that while shad were very numerous they were despised and rejected by the English.

This was not true of William Penn who, when he came to America, recognized the importance of the fisheries and made a stipulation with the Delaware Indians at a council held in the forest, which provided that he and his colonists could have the right to fish in the Schuylkill River.

In the upper waters of the Delaware the earliest shad fisheries apparently were established around 1751, and were "day" fisheries. That is, contrary to the usual custom, no hauls were made at night. When it ceased to be a fishery is not known exactly but it was still in existence in 1815.

Heavy toll was taken of shad in the upper reaches of the Delaware by people who set fish baskets one above the other until it was virtually impossible for fish to get past them, so that mature fish could not reach their spawning waters.

But an even heavier toll was taken of the young shad on their way in the autumn from the upper reaches of the river to the sea. So delicate is the structure of the young shad that the loss of even a few scales means death. Into the fish baskets nearly every young shad was forced to go, and thousands upon thousands annually perished there.

It is said that as many as 50,000 young dead shad were taken from one fish basket at a time, and it is estimated that as many more died of injuries suffered while jammed in the baskets.

NYMPH NOTES AND NOTIONS

(From page 15)

pletely unprepared for a little surprise the trout had in store for me one evening. I was stationed near the head of a large pool when a sizeable hatch of tiny cream colored mayflies began to come off the water. Trout were beginning to show all over the pool—not in the usual swirling rises but in clean, porpoise-like jumps that carried them completely out of the water. Confident that a size No. 18 honey spider would match the hatch, I made my first cast to the nearest rising fish. A slow, lazy swirl appeared under the fly but

the little spider floated on as jauntily and as dry as ever. Cast after cast was met with the same indifferent response and finally I resorted to changing flies. A size smaller, perhaps—or a size larger.—Or maybe a shade lighter—or a shade darker. The dilemma continued but nothing worked. Finally, in desperation—just before dark—I went back to the original spider and caught a gullible ten incher which I returned to the water.

The next evening I was back again, facing the same conditions, and still without a solution. For lack of anything better I started off with the little honey spider again, hoping that the trout would treat it more kindly this time. The first two casts were ignored completely but the trout soon tipped their hand. The little fly had become submerged in heavy water after a long float and I was retrieving it hurriedly for the next cast when two good trout appeared from nowhere and raced after it. I couldn't stop my backcast in time to accommodate the fish but I managed to get the fly back into the water in a split second. This time I pulled the fly under and began bringing it back in short, fast spurts just beneath the surface. That did it! A furious fifteen inch brown nailed it before it had moved a yard, and thus began one of the busiest evening's fishing I have ever had. Until dark, almost every cast drew a rise and invariably the trout were good ones.

What I had failed to recognize the evening before was the fact that the trout, even though they appeared to be rising to the duns, were interested only in the nymphs. The nymphs of these little mayflies are very fast swimmers and this accounted for the frenzied jumping of the trout. I would be the last to recommend the use of the dry fly fished wet for nymphing trout, but I can only say that in this instance it worked. A conventional nymph or wet fly might have been even better but I suppose that the little spider, with its hackles folded back along the body, resembled the nymph closely enough to be effective. Besides, the fast retrieve made it impossible for the trout to get a close look at the fly.

There are several varied techniques for fishing nymphs and they all share success when applied to conditions favorable for their use. Probably the most widely used method is the upstream, natural drift cast. This closely resembles the conventional upstream dry-fly cast and is particularly effective in big water and in large, deep pools.

The line should be well greased to float and the leader should be as long and as fine as possible to allow the nymph to tumble freely in the current. Drag should be avoided in the first part of the drift but it can be utilized to advantage when the fly begins to swing below the angler. When the deeply drifting nymph pulls taut against the line it swings toward the surface in an arc that emulates the ascent of the natural when it emerges into the dun stage. This is often a critical point; trout sometimes follow the nymph as it drifts freely and take it when it makes its upward swing. Often the take will be delayed until the nymph reaches the surface—to the everlasting satisfaction of the angler who likes to see the fish strike. One of the fondest pictures to come to my mind is of a heavy, brashly colored, nineteen inch rainbow that rolled to the surface and took my condor quill nymph as it drifted over a sunken boulder.

The deep, freely drifting nymph is very effective when the fish are lying on the bottom during periods of surface inactivity. Particular attention should be paid to underwater ledges, boulders, undercut banks, and other places of obvious cover for it is here that the larger trout will be found. This can be very exciting, albeit subtle business. The trout take the nymph confidently as it drifts to them and they seldom have to move more than a few inches to take the lure if it is travelling at proper depth. This makes it necessary for the angler to rely on his sense of sight for he will rarely feel the fish take as in downstream, taut line fishing. This is where the importance of the floating line enters in. If the end of the line stops, twitches, or moves against the current it should be treated as a take. There is no need to strike hard; a smooth tightening of the line will hook the fish without danger of leader breakage.

Upstream nymph fishing is not always feasible in small, shallow streams and the downstream cast often becomes the better method because the angler has better control over his fly. This is particularly true on narrow, brush lined pools where casting space is limited to the head and tail of the pool. Here the nymph can be cast downstream on a slack line from the head of the pool, allowing it to drift naturally with the current until the desired drift is completed. Then a shuttling retrieve will bring the nymph back—swimming it through whatever



"I know you like your coffee strong so I put some lye in it."

pockets or cover the angler wishes to guide it.

Pockets in broken water are often very productive in nymph fishing and they should be given special attention. In pocket fishing a short line is generally used and the nymph should drift deeply, allowing the current to eddy it around in the little whirlpools that are created behind rocks.

In Pennsylvania we are blessed with some exceptional limestone streams—streams which in physical make-up are counterparts of the celebrated chalk streams of the British Isles. These streams are almost unbelievably rich in insect life and the trout that they harbor certainly bespeak high living. These fish are epicures, carefully choosing their fare and growing fat from the vast cuisine the limestone streams offer. Slower, more placid sections of these streams are almost invariably bordered by lush beds of watercress or other aquatic vegetation, and in this vegetation live the scuds—known locally as "cress bugs." These are little crustaceans—almost nymph-like in appearance—that abound by the thousands in the water weeds and they furnish a choice and ever-abundant food for the trout.

These limestone waters are fruitful hunting grounds for the nymph fisherman and many beautiful trout have been taken by fishing the condor quill nymph very slowly along the edges

of the weed beds. We use twelve to fourteen foot leaders for this fishing because the water is deep and the nymph must literally "crawl" through the outer fringes of weeds.

As is inevitable in such rich waters, the limestone streams occasionally produce trout that far exceed the average trout in length and weight. These legendary giants are seldom seen; even more rarely are they hooked and landed. But they are there, and once in a while a lucky angler turns up with one.

No discussion of nymph fishing should overlook midge nymphs for, much as midges are cursed, the little beasts are here to stay. The occurrence of midges seems to be sporadic over the summer but it is usually late in the season when the trout really take a fancy to them. Many an otherwise rational fisherman has torn his hair out watching trout dine on these "unseeables," yet midge nymphs are often great medicine for these difficult trout, providing the artificial is small enough

**IF YOU WOULD
CATCH MORE
TROUT —
*KILL LESS!***

and is served up the way the fish want it.

My favorite midge nymph is nothing more than a short body of black tying silk on an extra short No. 18 hook with a sparse fringe of black ostrich herl as hackle. The short shanked hook permits a very small fly to be tied on a hook of obviously greater hooking qualities.

Midging trout often hang just under the surface in flat water and this makes it necessary to grease all except the last few inches of leader so that the fly drifts only slightly under the surface. Cast across stream or quartering downstream to rising fish and don't strike too quickly. Trout take these flies with a slow, lazy movement and an over-anxious strike will take the fly away from the fish.

One of the best ways I know to brush up on nymphing technique is to get an occasional workout on a good panfish pond. Panfish love nymphs and they'll do a lot toward sharpening your reflexes for that next session with the trout. Just remember to keep that line floating and use a long, fine leader.

Nymph fishing is not the panacea for all angling ills, to be used as a sure-fire method when everything else fails. Much of the charm of fly fishing would be lost if it were. It is, however, a form of angling practiced very successfully by those who use it judiciously, but grossly neglected by the average fisherman. It is no more complicated or difficult to master than the other forms of fly fishing; fish the nymph confidently where there are trout and you will take fish.

NEW DRY FLY CAST

(From page 21)

swift water near the angler while the rest of the line closer to the fly will remain much straighter, while the fly floats naturally. When the situation is reversed—with the quiet water near the fisherman and the swifter water near to where the big fish is feeding—then the angler waggles his rod just as the line is looping overhead, and as the line completes its forward action, he follows through with the normal cast. What happens? The line near the angler falls almost straight into the quiet water; farther out on

the swifter current it falls into a series of SSSSes and beyond that the dry fly floats undisturbed for an appreciable length of time.

In employing the Lazy S cast upstream where most dry fly anglers think they are getting a good float with conventional casts, the fisherman will be amazed how effective this cast can be here, too. By throwing in some small elongated SSSSes, he will see that his fly will tend to float more slowly and independently as the lower SSSSes near him straighten out first.

Also, it is quite possible to employ this cast with a roll cast to get the fly under overhanging brush or when a cliff or brush in the background do not permit a back cast. Then, as the roll is committed in the conventional manner, waggle the rod as the line slips through your fingers and the SSSSes, again, will form in the line.

Frankly, there are two drawbacks to the Lazy S cast—both of these, however, can become assets if they are recognized and properly evaluated: The Lazy S cast adds a great deal of slack to the line because of the SSSSes and because the angler will find himself fishing farther off than with his conventional cast. Fortunately, in striking the fish the impulse will travel through the slack SSSSes if the line is floating properly—thanks to surface tension. It will soon become second nature to the fisherman to judge the amount of slack, and strike accordingly, remembering that it is only

necessary to move the hook a quarter of an inch to set it. It helps, of course, to keep the point of the hook needle-point sharp, as it should be. By using the same power utilized in striking with the conventional cast, the angler will set his hook softer and therefore he can usually step down to a finer tapered leader tippet which is less visible and which will deceive more of the bigger trout. And that, to be sure, is the ambition of all trout anglers.

The second seeming handicap is that the strike is slower in travelling from angler to hook through the longer line and the SSSSes. For large fish, again, this is a decided benefit. They are deliberate and most anglers, including myself, have the bad habit of taking the fly away from their big fish. This cast therefore forces a certain amount of slowing down upon the angler.

All of which goes far in taking the trophy fish!

FISH IN THE OLD CANAL AGAIN

(From page 5)

the new plant. The local health officer meanwhile had taken care of the adjoining cesspool drainage that had been emptying into the canal.

By this time the ever-present boys were fishing in the canal for whatever would bite. During the warmer days they were "accidentally" falling in, undressed, and swimming. Signs posted by the Inter-Club Canal Commission prohibiting swimming until okayed by the health authorities were used to hang clothes on. According to a local newspaper columnist the canal looked like the good old days when it was a main artery of transportation as well as a recreational spot for the local people.

Then came the notice from the Fish Commission stating they would stock the two mile portion of the canal belonging to the Inter-Club Canal Commission on November 28, 1952. By evening, it was the main topic of conversation in the participating sportsmen's clubs as well as throughout the Borough of Freemansburg.

The Fish Commission stocked a total of 4,860 fish in five different locations along the rented portion of the canal. There were 500 yellow perch, 3,000 suckers and 1,360 black bass. A caval-



"Had tough luck with your rod,
Joe . . . Lost a nice one."

cade of cars containing sportsmen, junior sportsmen and townspeople followed the fish truck in its stops along the canal. The event was also covered by the local papers resulting in commendable publicity for the Fish Commission as well as the Inter-Club Commission.

The Inter-Club Canal Commission was greatly pleased with the splendid cooperation of the Pennsylvania Fish Commission and they feel their time and effort in rehabilitating the old canal has been well rewarded. Two similar sportsmen's organizations along the canal above Bethlehem have since requested permission from the Lehigh Coal and Navigation Company to do likewise with other portions of the canal. It appears now that within a few years many miles of the Old Canal will be reclaimed to serve as neighborhood recreational areas for thousands of people of the Lehigh Valley.



The Fly Book

By A. G. Shimmel

Teal and Red

Among the patterns imported into this country from the British Isles was one that had its beginning in an orthodox manner as a large brilliant attractor of sea trout and salmon. This excellent example of the tyer's art became one of a group of specialized hybrids used as reasonably exact imitations. This was so far from its creator's original conception as to appear fantastic.

The American TEAL and RED is tied on No. 18 or 20 dry fly hooks to imitate the pupa of the midge Chironomus. Its larva live in tubes at the bottom of pools and backwaters of the cooler streams. They are commonly known as blood worms. When ready to hatch they leave their slime tubes and float to the surface where the enlarged dark thorax is supported by its inclosed air bubble and its silvery air tubes. It lashes its body in a perfect frenzy of motion until the pupa case splits and

the adult emerges to use the empty case as a support until it is ready to fly. These characteristic struggles make it very easy prey for trout and other fishes.

The American dressing of the fly, on fine wire hooks, preferably the short shanked spider type, is tied with the wings pointed forward at an angle of 45 degrees. They are made from the tip of a well marked flank feather of teal. Divide them with tying silk and fan them into a half circle. The upper third of the body is tied of peacock herl and helps brace the wings in their forward position. This represents the dark thorax of the natural. The lower two-thirds is of light red silk that darkens to a blood color when wet. The body is longer than normal, covering about half the bend of the hook and adding to the resemblance to the natural. The hackle is red-brown in color and as small as practical. About three turns is sufficient and care should be taken to see that not a single fiber extends backward from the natural position but rather forward to help brace the wings.

In fishing this fly the wings and hackle are waterproofed to float, while the body is dampened and encouraged to break through the surface. This position represents the hatching midge in its most helpless plight. Trout take it softly, with a minimum of disturbances. That they are completely fooled is shown by the fact that many of the flies are taken so deeply that it is difficult to release the fish even though the hook is barbless.

The TEAL and RED is equally at home on either freestone or limestone streams and among all species of trout, but it is probably at its best in late season on the cool shaded mountain streams. Here it bobs along its wings showing as tiny gray specks among the bubbles and foam flecks of the crystal water. Blase indeed is the trout that will pass up such a delicacy.

IF YOU WOULD
CATCH MORE
TROUT

KILL LESS!

CLUB NOTES

Ralph Berry, secretary, Dormont-Mt. Lebanon Sportsmen's Club, reports club membership may hit 500 any day now. It's an indication the club is on the ball providing a well rounded activity schedule and seasonable entertainment.

Miss Clara E. Franz, secretary of the West Chester Fish and Game Association, gives the following list of new officials elected for 1953: Stephen Sheller, president; Elwood Tucker, vice-president; Clara E. Franz, secretary; Lee Tyson, treasurer. Miss Franz in a postscript says she enjoys the PENNSYLVANIA ANGLER with photos of waterfalls and streams very pleasing. Her hobby is photography, waterfall photos among the favorites. Takes the editor to task for not including sites and locations of those appearing in the ANGLER. Says it's frustratin' to want to get a shot of the same falls in color but know not where it is! We promise to give locations in the future, honest!

President George Hafer, Daniel Boone Rod and Gun Club, is urging members to cooperate in a planting program for the farmer, furnishing cover for game, preventing erosion. We feel this is real conservation effort, commend Mr. Hafer, hoping he includes that land which lies along the stream. Fish also need cover and shade!



"Anyone
for
seconds?"

The Editor's Angle

TALL STORY CONTEST

At Philadelphia Hatches

Some "Whoppers"

The "Tall Story Contest," conducted and sponsored by the Employes' Hunting and Fishing Club of P. T. C. (Philadelphia Transportation Company), at their booth, at the Philadelphia Motor Boat and Sportsmens Show, March 6th to 14th, produced some real corkers. The really true stories, as usual, hardest to believe.

There were two sections, the "Tallest Hunting Story," and the "Tallest Fishing Story," with three prizes in each section.

First prize in the fishing section went to, "Truth Stretcher," Samuel Weitz, 517 Spruce St., Phila., Pa.

Sams' "Whopper," went like this:

The "B" Line

Opening day of bass season. These magic words sent me on a fishing trip I will never forget as long as I live. It was a gloomy day, and the early hours were unproductive. My casts lacked distance, and the fish were not biting.

Just ahead of the boat, I noticed a bee struggling in the water. If it didn't get help soon, it would drown or some fish

would have a tasty morsel for breakfast. Being softhearted, I reached out and lifted the bee into the boat. The sun came out, and in a short time with it's wings dry the bee was able to fly again.

I resumed casting, and the bee watched my every move. It soon got on to what I was doing, went off on a scouting trip. Upon returning it started buzzing around excitedly. My attention thus attracted, it made a *bee line* toward the shore. I took this "B" line and wound it on my reel. I made a beautiful long cast to the spot the bee was hovering over, the fly gently landing alongside a submerged log. Then it happened. Wham!! A huge bronze-back leaped clear out of the water as I set the hook. What a strike! After a terrific battle, I landed this big bass, and in a big fish contest conducted every year by a National Sports Magazine it captured first prize.

I used this line to win many casting contests, and set new records.

The National Association of Casting Clubs were so impressed when they saw this line in action, they voted to adopt the "B" line as official in all their registered contests in the fishermen's distance event. "Some Line!"

Bruce A. Smith, 65 Hilltop Drive, Trumbull, Conn., entered this "CUTIE," and was awarded second prize, by the judges.

"Back home in Texas, I was fishing for catfish. I caught one that took two days for the water to fill back the hole. No one believed me, so I took a picture of it, and the picture weighed one hundred pounds."

W. E. McClennen, 620 Rutledge Ave., Folsom, Delaware County, Pa., took third prize with this, "Truth Stretcher."

"It was a beautiful, quiet, early morning on the lake. The boat drifted slowly along, until reaching a spot that looked like it. I quietly dropped anchor, and prepared for a few casts. Was wearing a fairly broad brimmed hat, on the band of which I had attached a plug. In some unaccountable manner the hat became dislodged from my head, and fell into the water, upside down. It moved out of reach, and almost immediately started for the shore line. As it moved along, it's momentum increased. By the time I straightened out, anchor up, and oars in position, it had reached the shore line, and started down parallel with the shore.

I started in pursuit. By this time the hat was making quite good time. I watched it, and shortly it lapped itself directly over a limb of a tree which was sticking out, just above the water line.

The limb started to move back and forth, the tree began to sway, and by the time I reached it, the hat was full of chestnuts, and hanging on the plug was a six pound big mouth." "Of course, many people will not believe this story," says Mr. McClennen.

Judges for the contest were, Charlie Vaughan, writer of the "OUTDOORS" column in the *Philadelphia Inquirer*, Ed Harvey, popular M C of the "HERE'S HARVEY," the "HI NEIGHBORS" programs heard over radio station WCAU and Quentin Fehr, associate editor of "The Pennsy," Pennsylvania Railroad magazine.

Besides conducting the Tall Story Contest at their booth, the Club had two petitions, which the visitors to the Show were asked to sign. One petition was to, "Make Striped Bass a Hook and Line Fish," and the second petition, "To Build a Fishway Over or Around the Fairmount Dam in the Schuylkill River." There were over five-thousand signatures on each of the petitions.

In its booth, the Club displayed an enlargement of its Resolution to have a Fishway Built Over the Fairmount Dam," and also a sketch of the Schuylkill River, from its mouth to just above the Flat Rock Dam, with actual photos of both dams placed opposite the dam areas.

The object of the Club is to make the entire Schuylkill Basin a recreational paradise, now that the river is much cleaner. In the very near future it will be capable of sustaining more fish, and a larger variety of fish; because migratory fish, such as herring, striped bass, and sturgeon have been taken in the Delaware, above and below the mouth of the Schuylkill. Herring were seen in the Schuylkill below the Fairmount Dam in the Spring of 1952, and a sturgeon was taken at the confluence of the Schuylkill and the Delaware at the same time. There is a chance some of these fish would have ascended the dam, and gone on up the Schuylkill as far as the Flat Rock Dam. Members of the Club, along with the men of the Aquarium are keeping a watch on the waters below the dam now, and will record any new specie that may appear. Joe Friel, of the Aquarium who nets fish at the foot of the dam to put on display in Aquarium reports he has netted gold fish, large carp, catfish, suckers, eels, calico, crappie, largemouth, and smallmouth bass, including a largemouth 18 inches long, weighed 5½ pounds when netted, which can now be seen in the tank there.



Left to right: Bob Martoaz, age 16, 628 N. 35th St., Camden, N. J., 1st prize—Hunting; Jack G. Heron, 516 Jansen St., Essington, Pa., 2nd prize—Hunting; Jim McCormick, 213 W. Baltimore Ave., Clifton Heights, Pa., 3rd prize—Hunting; Melville Robert E'We, Folsom, Pa., 3rd prize—Fishing; Samuel Weitz, 517 Spruce St., Phila., Pa., first prize—Fishing. Bruce A. Smith, second prize winner in the Fishing division of the tall story contest, is from Trumbull, Conn. and could not attend the awarding of prizes.

To the Memory of
Izaak Walton.
 Born at Stafford Aug: 19th mdxciii. Died Dec xvth mdclxxxiii.
 Buried in Winchester Cathedral.

Author of "The Compleat Angler," also of the "Lives" of
 Dr. Donne, Richard Hooker, George Herbert, Dr. Sanderson &c.

WALTON resided for many years in Fleet Street at the corner of
 Chancery Lane (West side) and between 1632 and 1644
 was an Overseer of the Poor, a Sidesman, and a Vestryman of this Parish:
 he was also a Member of the Ironmongers Company.

THIS TABLET, and the STAINED GLASS WINDOW
 on the North West side of this Church, were erected by some Anglers
 and other admirers of Walton in the month of April 1895.

James Booty.
 Joseph Crowther.

Churchwardens.
 St Dunstan in the West.

W^m Martin Rector.

The "Compleat Angler" published in St. Dunstan's Church-
 Yard in 1653, was written by Izaak Walton, whose memorial
 is seen here at St. Dunstan's Church, London. Walton's first
 wife Rachel was buried here in 1640. This famous fisherman's
 bible is still in great demand today throughout the world.—
 R. D. Barrett-Lennard.

Large trout have also been netted in the
 fast water at the foot of the falls. The
 land on both sides of the river below the
 dam is all private property. No matter how
 many fish were there, the anglers could
 not get a line to them, but practically all
 the land on the banks of the Schuylkill
 above the Fairmount Dam is public land,
 and open to everyone.

The Club will conduct and sponsor its
 second Tall Story Contest at the 1954
 Philadelphia Motor Boat and Sportsmens
 Show, March 5th to 14th, and if enough
 interest is shown will conduct a Bird House
 Building Contest.

Melville R. EW's, founder and president
 of the Club, which began its third year in
 February, reports that about one hundred
 and twenty-five thousand men, women and
 children visited their booth during the
 eight days of the Show, and that the
 membership is 100% subscribed to the
 "Angler."

Dear Editor:

Please find enclosed two dollars to renew
 subscription to THE PENNSYLVANIA ANGLER
 for two years. It's the most interesting
 magazine I have ever read. Thanks again
 for printing a fishing book so a "Dumb
 Woman Fisherman" can understand all of
 it. Hoping to get some real good fish from
 Lake Mashanon next season.

JANE KETZEL

Homestead, Pa.



Adrian Meyers, Idaville and H. N. Heffebower, Lemoyne showing carcass of red
 breasted merganser that died from odd
 accident.

On February 22, 1953, Adrian and
 Elton Meyers, Idaville, Pa., and H. N.
 Heffebower, Lemoyne, Pa., were fish-
 ing for suckers in the Conodoguinet
 Creek a short distance below the mouth
 of Silver Spring Creek. A female red-
 breasted Merganser duck, in distress,
 was noted by these men. Her condition
 was such that she drifted with the cur-
 rent aimlessly.

Getting her to shore they found part
 of a fishing line protruding from her
 mouth, the other portion of the line

with sinker attached was wrapped
 around her legs. After taking the line
 from her leg they cut the line off at
 her bill. They then placed her on the
 shore.

Next morning same men returned to
 fish at the same spot and found the
 duck had died. Special Fish Warden
 Russell Heycock of Lemoyne was told
 the story. He opened the duck to see
 what he might find. He returned the
 hook but the fish had been digested.
 It will perhaps always be a mystery as
 to what the duck had eaten with the
 hook.

One might guess that some fisher-
 man's line had gotten fast on the bot-
 tom and was torn off. Later a fish was
 caught and the duck, of the diving
 species subsisting mainly on fish,
 found the chub or other fish on the
 line, ate the fish and swam away. Later
 she became entangled in the line which
 prevented her from feeding in the nor-
 mal manner. It is believed the duck,
 because of this impediment, simply
 starved to death.

Dear Sir:

Enclosed please find one dollar for the
 next 12 issues of the best sports magazine
 in print.

I would like to know what is in the
 bucket into which they are dumping trout,
 inside front cover, March 1953 issue of the
 ANGLER. Looks like milk or a soda solution
 and there's a deposit of same on the cuff
 of the pants of man on right.

WILLIAM FEDDOCK

Forest City, Pa.

That IS water in the bucket, Mr. Fed-
 dock, topped by a foam that is whipped
 up by constant streams of water pumped
 through the tanks. The deposit on the cuff
 is snow and ice. It was a snowy day and
 cold when photo was taken.

Dear Sir:

If you and other fisherman want good
 fishing try the North Fork Paradise at
 Brockway, Pa. A number of years ago the
 Sportsman Club of Brockway decided to
 commence a fishing project on the North
 Fork, a few miles outside Brockway with
 the cooperation of farmers, the W. P. A.,
 and The Pennsylvania Fish Commission.

Under the supervision of Robert Hender-
 son of the Brockway club plus advice and
 recommendations of the Fish Commission,
 the stream was cleared of debris and a
 number of dams built. Old logs were left
 in the stream as hiding places for fish.
 Regulations were set up and the Fish Com-
 mission furnished fish for about eight
 miles of the stream that borders the
 Paradise. Artificial lures are only legal
 bait permitted and signs tell fishermen the
 rules, the balance of the stream is open
 for live bait fishing.

This year the newly organized Brookville
 Sportsman's Club has united with the
 Brockway club in the stocking program.
 The North Fork is about 20 miles in length,
 winds through woodlands and farms, be-
 ginning near the game school ending at
 Brookville, the town's water supply. Today
 thousands of anglers from all parts of the
 state enjoy the project that took so much
 hard work to become a reality.

RAYMOND FELDMAN

Brockway, Pa.



Combined group of Brockway and Brook-
 ville Sportsmen's Clubs with Pennsylvania
 Fish Warden Dead Davis (second from right)
 as they completed the stocking of the North
 Fork Paradise.

Dear Editor:

Enclosed you will find a short poem written by yours truly to express the thoughts of the anglers in our club. I thought you would print it in THE PENNSYLVANIA ANGLER.

The club is a fishing club which sponsors a trout contest for the local gang. Entrance fee is one dollar and ten prizes are given at end of season for largest trout. Every year we have at least one entry of over 20 inches. Most of the gang are subscribers to the ANGLER so we hope to see the poem in print.

EDWARD I. SOUTHAM

Hazleton, Pa.

THE DIAMOND ANGLERS THOUGHTS

Have you ever passed a quiet stream
Or else a babbling brook
And wished you had inside your car
A fly rod and a hook?

Have you ever stopped to cast a glance
Upon some shimmering stream
And see an angler cast a fly
For trout or colorful bream?

Have you ever waded streams so clear
In quest of elusive trout
Always mindful of the strike
That means a lively bout?

Have you ever watched a rainbow trout
As he rises to the fly
With arching back and fins ablaze
And battle in his eye?

Have you ever watched the hemlocks green
As they swayed with every breeze
Or have you stood among the ferns
That brushed your very knees?

Have you ever thought deep inside yourself
Why some men cannot see
Why men like us enjoy this sport
And live in harmony?

It's men like us who love to fish
And who are sportsmen to the hub
That we want in this group of ours
The *Diamond Anglers Club*.

—Edward I. Southam

Dear Editor:

I am sorry to report you have copied my carp bait recipe incorrectly. Here is the correct recipe:

"This carp and catfish bait needs no cooking, is effective for both. Use whole wheat bread. I use 2 or 3 slices, moisten with pancake syrup and a little water to make a soft dough, then add flour until you have a stiff dough that will stay on the hook. The rest of your printed recipe is all right."

MRS. AMY EDMONDS

Pittsburgh, Pa.

Mrs. Edmonds' original recipe we gummed up was first printed on page 29 of the March issue. Please forgive us, madam.

In the

PENNSYLVANIA ANGLER

15 YEARS AGO

Fish Commissioner Milton L. Peek and Col. Nicholas Biddle, president of the Pennsylvania Game Commission, were principal speakers at the annual



Harvey O. Wren, member and reporter for the Southern Clinton County Forest, Fish and Game Association, sends in this photo of Big Fishing Creek near Loganton, Pa., during a late fall freshet. The stream, 16 miles of trout water, extends the full length of Sugar Valley, flows through Nittany Valley to finally enter the Susquehanna.

spring dinner of the Delaware County Chapter, IWLA, at Media. P. G. Platt, president of the Chapter, was toastmaster.

* * *

Special Fish Warden Nick Ratamess, Berwick, reported catching a small alligator while fishing the upper Delaware River. He offered a photo as proof of the catch.

* * *

The Spring Creek project, Fisherman's Paradise, was scheduled to open on May 10, 1938.

* * *

"Do sucker fishermen travel far to reach good fishing waters?" the 1938 ANGLER asked. E. L. Frampton and E. P. Updegraff, member of the Wilkinsburg Sportsmen's Club, reported they had been out on 14 different occasions in quest of suckers prior to the latter part of March. On these trips they traveled a total distance of 1,880 miles by auto. They reported also, nice catches.

10 YEARS AGO

C. Leroy Wanner of Reading caught a 30 lb. snapping turtle while fishing a pond for yellow perch. The line was 6 lb. nylon and a small claw type hook. It took over 45 minutes to work the big snapper into the boat. He was grabbed by the tail and swung aboard. According to Mr. Wanner, then the fun began. Wearing only sneakers the angler did some adagio dancing to keep away from the powerful jaws of the reptile.

* * *

ANGLER friends were sending PENNSYLVANIA ANGLER subscriptions to members of the armed forces.

* * *

The 1943 May issue of the ANGLER stated open trout streams need willows.

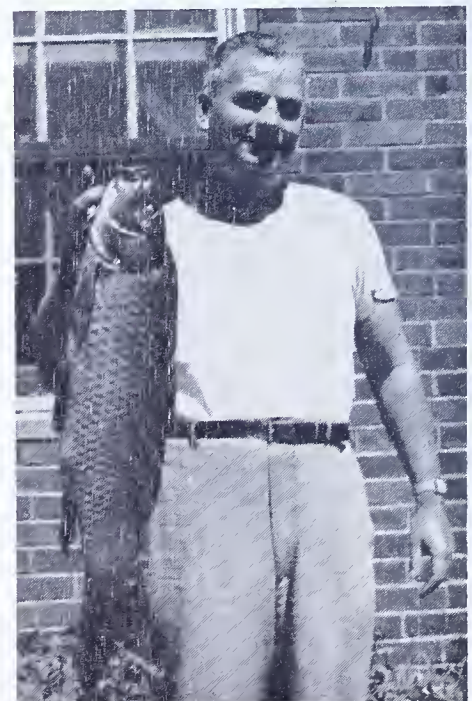
It urged planting willow shoots along the stream by simply shoving a cut and trimmed branch into moist ground in an open place exposed to sun, yet in a spot where the shoot would not be trampled.

Dear Sir:

Received my first issue of THE PENNSYLVANIA ANGLER and it's the best, just like being away from home and meeting a hometown. I enclose a picture I think some of your readers who fish in North Park Lake would be interested in. The photo is of my father, Howard C. Ebner with a 12-lb., 33½-inch carp he caught last July at the spillway of the North Park Lake. The fish is said to be the largest ever taken at the lake and was caught on a nightcrawler while fishing for bass with a spinning outfit using a 4 lb. test line. . . . No great feat but a lot of fun. The lake contains lots of bass that run from 9 to 22 inches.

HARRY F. EBNER

Homestead, Pa.



PENNSYLVANIA ANGLER



“Pass the Worms Pappy!”

Yep—and pass the PENNSYLVANIA ANGLER along to a fishing buddy—let everyone you know in on one of the most important conservation—angling publications printed!

At your request we will send that fishing partner a free sample copy of the Angler. One good squint will convince him to join the fast-growing list of subscribers. Just clip and mail request below. Our Circulation staff will fill all requests as time permits and supply of sample copies last.

YOUR OWN SUBSCRIPTION is up for renewal or you wish to send gift subscription to that friend, clip and mail form below.

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Pennsylvania Fish Commission
Harrisburg, Penna.

Enclosed is \$..... for my (New) (Renewal) subscription to the Pennsylvania Angler:

Name

Address

.....

Subscription rates: 12 issues, 1 year \$1.00.

REQUEST FOR SAMPLE COPY OF PENNSYLVANIA ANGLER

Pennsylvania Fish Commission
Harrisburg, Penna.

Please send free sample copy of the Pennsylvania Angler to:
Please PRINT name and address plainly)

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THE FOUR HORSEMEN OF OUTDOOR AMERICA





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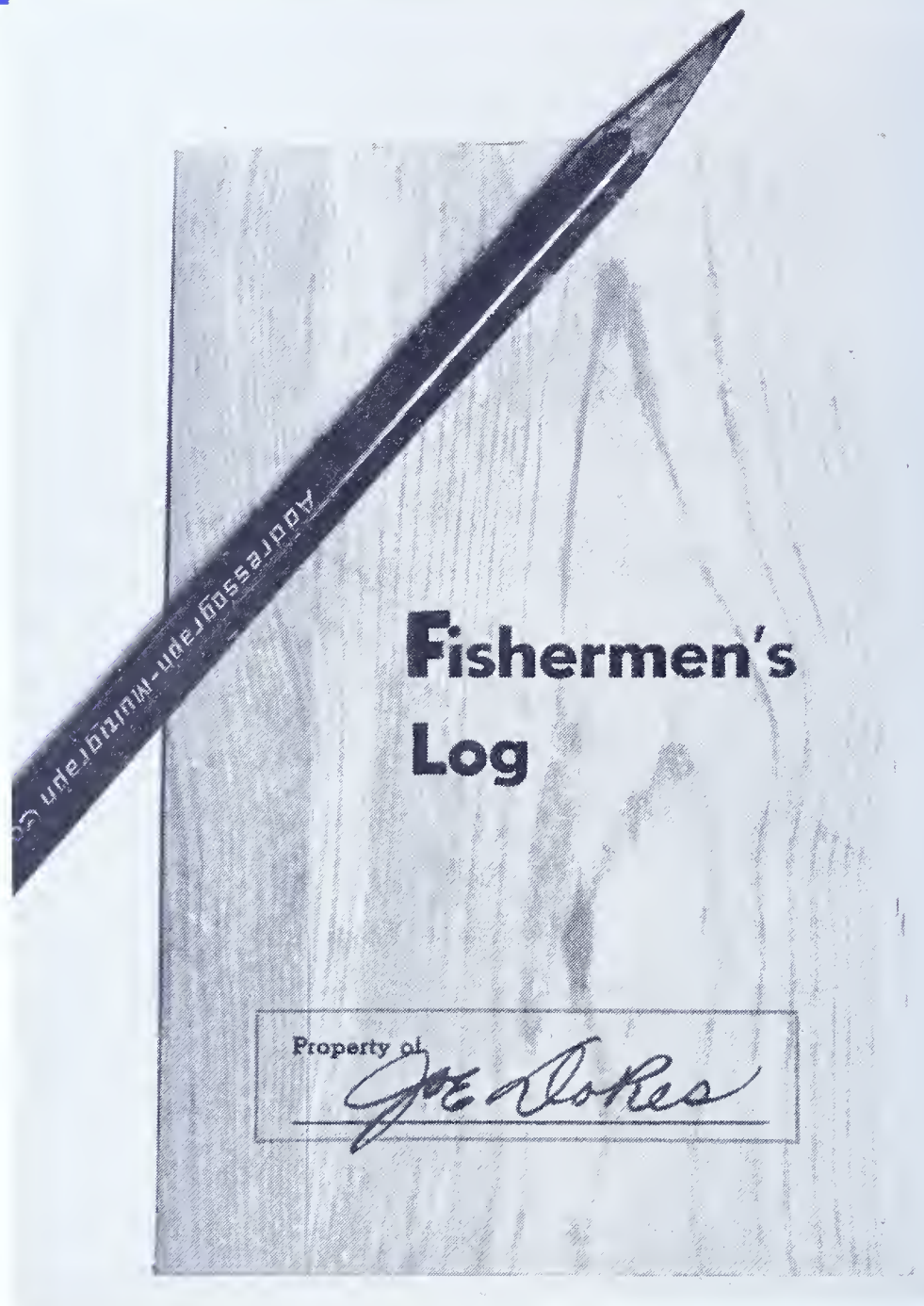
STREAM PRACTICES • IS FISHING FOR GIRLS? • RIGHT FLY LINE

BOATS FOR FISHING FUN, FAMILY PLEASURE • SPINNING FOR CARP

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Trout
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SPRING CREEK PROJECT — CENTRE COUNTY

Famous the World Over for Wonderful Trout Fishing

SEASON CLOSING JULY 18

**AMPLE FREE PARKING SPACE—BRING THE ENTIRE FAMILY—
SPECIAL STREAM SECTION FOR LADY ANGLERS**

(See Regulations on Page 22)

COMMONWEALTH OF PENNSYLVANIA

HON. JOHN S. FINE
GOVERNOR

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Box 3, Sweet Valley, Pa.;

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242 E. College Ave., York, Pa.; Phone 7434

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THE COVER . . . photo of a man "at peace with the world" but ready to battle that big one under the falls.

—Photo by Cy La Tour & Son

BACK COVER — Following simple rules of boating safety may save a life . . . your own!

—A Forrest-Cypher conservation cartoon.



George W. Forrest, Editor

1339 East Philadelphia Street, York, Pa.

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Stream Practices, Wise and Otherwise

By ALBERT G. SHIMMEL

LOOK FAMILIAR? Is it any wonder our streams commence to look like pig pens and rat holes. The "great American litterbug" is becoming famous for dumping trash, garbage and debris anywhere but in his own backyard. Such practices rile the landowner, often results in posting. Paint cans, oil and gas containers spew substances into the waters that do little good for fishlife.

DON SHINER PHOTO



NORMALLY I'm a rather placid individual, not easily aroused and with little of the crusader spirit. But right now I'm angry. Not the soft spoken, diplomatic, kid-gloved sort of indignation but the hackle raising, finger twitching, profane sort of wrath that makes me want to throw things, change things and individuals single handedly. The kind of hot fury that would persuade individuals by the woodsman's bare knuckled, spike-booted philosophy of force rather than the more civilized, democratic way of tolerance, argumentation and verbal persuasion. Living in this modern age I am forced to remember that it is better to obtain results by peaceful means rather than resort to the knotted club, fist, hatchet tactics of my ancestors. Not that certain individuals do not start a wish that I could revert to the primitive.

I have been inoculated from childhood with the idea that ownership of land or privilege constitute a stewardship and a moral responsibility to improve such holdings rather than exploit that which has been placed in my trust. Land can be made to produce for centuries with proper care. Waters can remain productive and unpolluted in the face of hundreds of years of careful use or they can be destroyed by one thoughtless, selfish individual or group in much less than a generation.

Most of the crimes against conservation principles are committed through ignorance or thoughtlessness, although a few individuals are brazenly selfish. These are the killers seeking to net the last fish or shoot the last head of game, trying to make a personal profit from the last bit of fertile soil, the last stick of timber. They play via their own rules and, if caught in an infringement of existing law made for public protection, will shout to high heaven of social injustice. If not apprehended by alert enforcement officials they often give themselves away by boasting of their illegal escapades. Fortunately these individuals are few in number, but the damage they do is impressive. The ignorant and thoughtless can be taught the benefits of good practices, usually cooperate, the others can only be dealt with by tight law enforcement.

There are several practices distinctly detrimental to the sport of angling. Of these probably the most shortsighted, and in some cases disastrous, is the taking of live bait from a stream in which game fish are present. The balance of life in a stream or lake is relatively more sensitive than the same

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balance on land. No right-minded farmer would turn out livestock on a denuded range and expect them to survive, much less show a profitable gain. Yet we constantly allow our waters to be robbed of the very food game fish depend upon for life itself. Is not the hand now around the neck of the goose that lays our golden egg?

On one of the most famous streams of central Pennsylvania there are wadeable stretches where bottom stones show the brightness of constant turning and scouring by the live bait gatherers. In the opinion of anglers intimately acquainted with the stream, the fly hatches are becoming less abundant year by year. The constant turning of rocks and debris destroys much more insect life than is captured for bait. Of the amount collected it is doubtful if more than a small percentage is actually used. Much is wasted.

Last season I came upon a quart jar lying close to the stream bank where it had been discarded. There were 42 water worms (larva of the crane fly) by actual count, dead from exposure to the heat of the sun. Aside from having more than the legal limit of possession the angler had been too lazy or hasty to return them to the water where they might have survived or at any rate served the end of their creation by filling mouths of certain aquatic life. Such discarded bait containers are common along most of the fishable waters of the Commonwealth.

The larva of the caddis fly, especially the one that builds the case of sticks, and known to anglers as stick worms, straw men, periwinkles and many other local names, is another species that is feeling the pressure of too liberal bait gathering. Being available throughout the season it probably forms a large percentage of insect food for game fish. They seem to relish case and all as shown by stomach contents. The evening and night flights of the caddis flies that bring the wise old browns to the surface, will soon be gone as a result of this pressure. Perhaps before it is too late, interested sportsmen will demand conservation measures that will save their sport.

An excellent substitute for this aquatic larva are the white grubs known as "sawyers" found during the summer under the bark of winter cut white pine. They are tougher on the hook and just as attractive to trout as caddis worms.

Nymphs of stone fly and the larva of the fish fly are eagerly sought by bait gatherers and are becoming rarer each



James Balog Photo

CAREFUL WITH THAT NET, BROTHER! Is it legal size? Do you know the legal number of minnows to have in possession? How much insect life will you destroy by wading and stirring up rocks on the stream bed?

season. The hellgrammite of the bass streams has been exploited to the point where they are much less common than formerly. The stone fly nymph can readily be copied by any good fly tyer and prove as effective and much more durable than the natural. The hellgrammite has also been copied but although the artificial looks natural, results with it have proven disappointing.

A small trout stream flowing through mixed woodland and farm land for some seven miles was a good producer of trout for many years. It had plenty of Black-nosed Dace and aquatic insects on which the trout thrived and grew to good size for so small a stream. Then anglers from the nearby city began to take the minnows for bass bait. Their method was one commonly used to get minnows in small streams. One man holds the net at a natural constriction below a pool. Another angler enters the water above kicking, splashing and turning over the stones and disturbing the stream bed as

much as possible. This drives the minnows into the net. Not only are minnows taken but many aquatic insects are killed or dislodged and the habitat of the stream bed disturbed. In this case it went on until the minnows were caught out and the productivity of the stream destroyed. Today the stream is barren except for a few small suckers and an occasional brook trout that has been spawned in the feeders and works down into the larger stream. Even these specimens are a race of small-bodied, big headed dwarfs. Whether this stream could be again brought into productivity is one of the unanswered questions of stream management.

Minnows not used by the angler are seldom returned to their native stream but are usually dumped into the stream or lake where the angler has been fishing, with the result that undesirable species may be introduced into streams or lakes with results

(Turn to page 22)



GIRLS CAN'T FISH . . . now who said so? Here's a little lady fully equipped to tangle with anything that hits. It isn't a pose either . . . she can really fish.

—Author of—

FISHING FOR WOMEN

A. S. Barnes Company, New York

and

REVISED COMPLEAT ANGLER

The Stackpole Company, Harrisburg, Pa.

Is Fishing For Girls?

By EUGENE BURNS

JUST like five million other fishing fathers in America today, I've got children. Only mine happen to be nine-year-old twin daughters who keep pestering: "Daddy, when in the world are you going to take us along fishing?"

A year ago before I went into some brand-new psychological findings on this subject of fishing for girls and tied these up with educational practices, I might have rebuffed them by saying, as many parents do:

"Look, you won't like it. Fishing is a boy's sport. You see, by nature you're more afraid of the deep dark woods, and snakes, and mice, and cold fish than boys are; besides you aren't strong enough to wade a cold stream; and anyway, to be honest about this, let's just say it's too hard for girls to learn to tie knots and cast properly."

But in the light of modern science, how do these conventional rebuffs hold up? Should they be taken seriously?

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And, should they prove to be old men's tales, let's see just what educational principles should be applied to make a girl's first fishing trip an altogether delightful experience leading toward a basic and abiding love of fishing and toward a better companionship with a future husband.

Don't smile about that husband angle. While fishing for fish, it's not beside the point to land a husband, either. After all, totaling all factors, about 13 per cent of all girls who reach 18 in the U. S. are doomed to spinsterhood. But the girls who know how to fish seldom stand in need of a marriageable male companion. And what's more, in fishing a girl meets the best kind of men, too, those interested in the outdoors. For the girls, I'd say, there is nothing finer than to learn to fish in the company of the men I've met in the past 25 years as a forest and park ranger and angler.

Without hedging, then, let's fire away at the popularly-held beliefs and then see how they hold up. And if they

don't, how should a parent go about teaching his daughter to fish so she'll enjoy it.

Are girls more afraid of the "deep, dark woods" than boys? Do they have sufficient courage?

Are girls strong enough? Can they withstand the rigors of fishing without harming themselves?

Have girls the dexterity to tie knots and learn to cast?

Have they the intelligence to cope with emergencies? Does their leadership compare with a boy's? Will their interest sustain them in such a typically "masculine sport" as fishing?

First, let's look into the question of fear and courage. By nature, of course, boys are supposed to be more fearless. But are they? Actually psychologists and educators have found that fear makes no distinction of sex. Girls are no more afraid of the woods, the dark, dead animals, mice, or snakes than boys are. In fact, Dr. Arthur Jersild, Professor of Education at Teacher's College, Columbia University, says that

boys are more often afraid of the dark than girls and that boys will quake at the sight of a dead mouse just as fast as a girl. During the past war, when I was a war correspondent, I found that in the heavily-bombed areas, the number of women who suffered emotional shock and psychoneuroses was less than that of men. After the war, I read a study which said that the women suffered about 30 per cent less!

From the standpoint of strength, girls up to their early teens are just as strong as boys of their age and their equal at ball-throwing, broad-jumping, gymnastics and other sports, says Dr. John E. Anderson, Director of the Institute of Child Welfare, University of Minnesota. When 4,000 4-H Club members participated in long-distance running contests, the best scores by girls under thirteen and a half were the same as the best scores by boys, and some girls ran ahead of boys two years older. However, among youngsters past that age, though, girls cannot catch the boys' dust. After puberty, however, girls tend to increase in strength less rapidly than boys who literally bound ahead.

However, as for withstanding the rigors of a fishing trip, a girl in her teens or a woman can stand cold and heat much better than a boy or man can. The girls can wade into cold water and fish in comparative comfort while boys in similar attire would be blue with cold and their teeth would chatter. (It is claimed that the average woman when naked will feel no colder in a cool room than a man with a light suit of clothes on.) Likewise when it is hot a woman can stand heat much better. Long before the average female even starts to perspire or "glow" the average male may be covered with beads of sweat. That is because the human female can make adjustments to heat and cold more readily than a man. Besides the female as a rule has a more generous layer of insulating fat beneath her skin which gives her typically feminine contours. Combined with this, when exposed to cold she has an increased metabolism in a way which the male cannot match; while to heat she responds with a reduced metabolism, which again is done in a way the male cannot duplicate. As a result, she is able to adjust herself to extremes in temperature in the woods much better than the boy.

As for dexterity—say in such manipulatory skills as are required in casting a fly or tying a knot—girls have much

HI, HONEY! How's luck? Oh, I see you do have one for the stringer. . . . Nice work!



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AT THE TURN of the century I was just old enough to appreciate the fun to be had hauling a fish from the river.

At that time we lived not far from the Allegheny River. In those days it divided two growing cities, Pittsburgh on its southern shore, Allegheny on the opposite bank.

Toll bridges provided access between the two. Spanning the river, at 16th Street on the Pittsburgh side and Chestnut Street on the Allegheny side, was an old covered wooden bridge, the means of reaching our favorite fishin' hole, at the foot of 17th Street.

It was here an outlet from the Oil Well Supply Co. seemed to be an attraction for the finned dwellers of the Allegheny. Even to this day we never learned just what it could have been. All we knew it was one of the best places along the river to pick up a fish dinner.

Yes, I remember the many times I returned to my home with the evening meal. It was a favorite haunt on Saturdays. Occasionally, on Sundays, the older folks would join the youngsters. We caught fish, several kinds of them. What species? Nobody knew, nor did anyone care.

Today, as I recall it, those unknown species were spoonbill "cats" as much as six feet in length. They were the same huge catfish still caught today in the Mississippi and in others of its southern tributaries. There were sun-

fish and rock bass, suckers and carp, perhaps others, too, we would recognize today but didn't back in the days gone by.

Yes, I remember Bill Gearhart, a school chum. Where Bill is today I haven't any idea. I haven't seen him for years. Perhaps he has long since gone on down the trail which knows no return. Bill, like myself, was interested in fish and fishing. Invariably, on Thursdays we would be absent from our classes. It was the day we were occupied with the pleasant duty of sorting the catch made by a couple of old bachelors who lived in a houseboat at the foot of Madison Avenue.

To tell the story as it actually happened is almost unbelievable, yet I have never spoken nor written truer words.

Thursday mornings, shortly before 9 o'clock Bill and I would cross the gangboard and find the two oldtimers getting ready for the day's work. Sometimes we were invited to have a cup of coffee, though the liquid licorice never appealed to us.

On the downstream side of the houseboat a long net was neatly piled, one end fastened to the deck. The first operation was to bring a skiff into position so the net could be transferred to it, layer after layer being added until the entire net reposed on the stern. One of our friends at the oars, the other at the net, was the next step and as the skiff moved out into the river

and upstream the net was dropped into the water. When the entire net was in the stream both took to rowing the boat as quickly as possible into a wide arc, then back to the houseboat.

Believe it or not, that effort would result in a wagon-load of fish. Once the opposite end of the net was made secure to the houseboat Bill and I would begin our work sorting the squirming mass—this species into a tub, another into a barrel, the third into several bushel baskets, the fourth into some other handy container. For an hour or more the four of us would be busy.

A short distance away, on River Avenue, the bachelors stabled a horse and a wagon. With the fish sorted—our pay was usually a chip basket of suckers or the smallest of the catfish—the wagon would be loaded and off they would go, selling their wares to the folks of the city known as Dutchtown, many of whom feasted on fish the following day.

By late afternoon they would return, put away the horse and wagon. In the meantime Bill and I had replaced the net in its usual place and were ready to call it a day. So that there was no evidence of our playing "hooky" we also sold our share, frequently getting as much as a quarter and sometimes even 30 cents.

Yes, I remember. They were the good old days. Years later, when the two old bachelors died they left a good sum of money to a local orphanage, among the

Yes . . . I Remember!

By JOHNNY MOCK

Editor—"All Outdoors"
The Pittsburgh Press

One of America's top outdoor writers and conservationists turns back the clock into memories of fishing of yesteryear. The nostalgia of these bygone days will get you where it often hurts but come along while Johnny Mock reminisces.

best of their customers. Thinking of it now they enjoyed a very pleasant life, working but one day and a half a week.

Then came a day I never forgot. I remember it was a Saturday morning. Bill and I had agreed to meet at the bridge for a day's fishing at the old fishin' hole. When I approached the river I noticed something unusual had happened. None of the surface was to be seen. It was covered from bank to bank with fish, most of them dead, some still floundering about in their death-struggle.

When Bill joined me we walked out to the middle of the bridge. Upstream as far as could be seen was a sad sight to behold, not a thing but fish of every description, big and little ones, light and dark ones, fat and skinny ones.

To get to the opposite side it was necessary to walk to the end, then cross over. Again we walked to the middle, this time gazing downstream. The same ghastly view. Others were looking at the shocking sight. I can't remember any of the expressions we heard, though I do remember one chap asking another onlooker what could have caused such a killing.

Those were the days before anything was known about pollution, but we were a witness to what could happen. I doubt if anyone ever knew just what happened or even where the destructive agent was dumped into the river. Fifteen miles upstream in those days was a long way off.

For almost a day and a half the dead fish were in view as they floated southward. For a few more days some of the rotting fish could be seen along the shores. Soon, they too, disappeared.

That ended fishing in the Allegheny, at least in the vicinity of Pittsburgh. Perhaps it was acid mine drainage or waste from one of the new industrial plants coming into existence somewhere along the river.

Yes, I remember that never-to-be-forgotten day—the day which probably inspired in me the interest which was to come later in life, to do what I could for the purification of streams. I knew what the river was and what it could be if the destructive agencies could ever be barred from being dumped into it.

And someday I was going to play a small part in bringing it about.

In 1917 I decided that railroading may be an interesting life's work, taking on the duties of firing for what was then the Pennsylvania Lines. In those days the division on which I



BIG SNAKE HUNT in French Creek, 1934, brings back memories to author, Johnny Mock, editor, "All Outdoors," the Pittsburgh Press. On left is "Slim" Krause and on right is C. A. French, executive director, Pennsylvania Fish Commission.

bailed black diamonds was known as the PFW&C, or Pittsburgh, Fort Wayne and Chicago.

Unknown to me at the time it was to play a vital part in what was to later become my actual line of endeavor. Transportation was free and this paved the way for fishing on more distant waters, a luxury I couldn't have otherwise afforded.

Yes, I remember, very well one of the first passes used. It was for a jaunt less than 75 miles from Pittsburgh, but it meant riding another railroad, the Darlington, Lisbon and Western. Our destination was Watts Mills, on the Little Beaver Creek. Our companion was a chap named Vic McNally, another fireman and a very enthusiastic fisherman.

There was no station where we got off, being nothing more than a wayside stop. The creek was hardly more than a hundred feet from the tracks. It didn't take Vic and I long to get our tackle together and in a few moments we had fish for dinner—four black bass and two catfish.

After the meal we decided to do a bit of exploring. A short distance below

where we decided to do our camping was the entrance to a mill race. The sides were walled with stone, but it wasn't the tedious workmanship it took to create the waterway but the number of black bass in the stream which impressed us—never before had we seen so many in so small an area, the width of the race being hardly more than five feet. We walked along its course, amazed at the sight. When we reached the old mill we found it hadn't been in operation for some time, but the water still flowed through it and then back into the creek.

Those bass were simply confined to a prison from which there seemed to be no escape. Apparently few people, if any, knew of their presence, since overhanging growths did provide shelter and a hideout, or the folks in that area cared little or nothing about fishing.

Vic and I caught a few, but since we had already eaten and knew where they were, if we wanted fish again, all that were caught were tossed back. We sure hit a jackpot!

Like a good many fishermen, Vic and
(Turn to page 23)

Spinning Was Made For Carp

By ERWIN A. BAUER



QUEEN OF WATERS . . . at least that's what Izaak Walton called the carp. Nothing glamorous, not even good-looking but a rough tough fighter in the heavyweight division with a knockout punch.

THERE'S no point in cussing carp any more. We might as well make the best of them.

So far our biologists have found no way to dispose of them without destroying other fish at the same time. Anglers can't catch them fast enough to make a dent in the over-all population. So it looks like carp are here to stay. And according to the way you look at it, maybe that's not so bad.

Let's see how the carp measures up. A three or four pounder is average in Pennsylvania. No other fish of the same size is as powerful. Carp will never thrill you by jumping—or even by breaking the surface—but they straighten more hooks and break more lines than all other freshwater fishes together.

Maybe you've known humiliating moments at the hands of old settler browns. Perhaps you've spent an entire summer, as I have, just trying to hook one jumbo. Well—carp are every bit as wily and as fastidious. They belong in the heavyweight class mentally as well as physically. For instance, you'll fish a lifetime before you take a carp on any type of artificial lure. Of course that disqualifies him from the roster of game fish, but it doesn't label him a dumbbell. The bass, bluegills and trout fall for all those hair and hardware combinations easily enough. But carp need real calories.

There is another, less happy side to his character, though. Those tendencies, for example, that earned him the name of "sewer bass." His foraging habits roil vast areas of water, consume beneficial types of vegetation and suggest the name "root hawg." And no matter how you look at it, his physical appearance is not likely to inspire any classic fishing essays.

Depending on your point of view, carp have another very good or very bad quality. They're abundant. You can find them virtually wherever there is water enough to cover them the year around. They are tolerant to extremes in water temperature and to a great variety of impurities. They prosper in clean water and foul, in running streams and in lakes.

Catching carp is fascinating business. It requires skill. Sloppy casts to feeding fish will put them down as surely as a poor delivery will frighten a feeding brown. For the greatest success it requires use of light and delicate tackle—preferably a spinning outfit.

Spinning was made to order for carp. Its European originators probably had carp in mind. The critical moment in

carp fishing is that second or so when a curious fish lightly samples your bait. If there is any noticeable drag, he'll hurry away in search of vitamins less likely to be fatal. Right there is the biggest advantage of the spinning reel and light monofilament line. By leaving the spool open, line can be pulled from the reel by a nibbling carp with practically no resistance.

There are other advantages to spinning. In carp fishing, you're dealing with small baits and the lightest sinkers possible. Spinning affords the greatest ease in casting them. It also gives you more distance.

Carp are steady, busy feeders. But they are fastidious, as we mentioned before, and almost dainty. They scour strips of bottom as thoroughly as a vacuum cleaner, but morsels of large size are discarded, even by larger fish. It is as important for an angler to use only small baits as it is to prevent drag on a sampling fish. That means small hooks, too.

Prepared dough baits are the most popular with carp fishermen wherever you find them. And justly so—for carp are susceptible to a great variety of these homemade concoctions. A quick and easy one to prepare requires equal quantities of flour and yellow corn meal. Mix them with enough water to make a dough. Drop small pieces, each no larger than your smallest fingernail in boiling water. Remove them when they become like sponge rubber. Dip in anise, put them on No. 6 or No. 8 hooks and they're ready to go.

I rarely fish specifically for carp any more. But I do carry a supply of those dough baits in my kit. There are always days when other fish are not hitting—so I put the dough baits to work. And of course there are occasions when a school of feeding carp is located. Times like these you'll often have more action than you would with any other local fish. A five-pound carp can give you some exciting moments; a ten pounder will leave you talking to yourself.

There are as many effective baits for carp, nearly, as there are carp fishermen. Marshmallow is popular. Partially cooked turnips, parsnips, or potatoes are good. Perhaps the most deadly of all is two kernels of fresh sweet corn on a very small hook, even for very large fish.

Some queer baits have also been used successfully from time to time. Ivory soap has produced good catches. The list is long; it includes wall paper cleaner, cheese, and salmon eggs.

Among the natural baits, you can't go wrong with night-crawlers or small crayfish. I've had them take hellgrammites, too.

Sometimes finding carp is a simple matter. On other occasions, it can be quite a chore. Roily water areas are often good indication of their immediate presence, especially if surrounding water is relatively clear. Obviously it's good policy to confine your fishing to mud bottoms. Carp feed by "rooting"—and rocky or gravelly beds are not suitable.

In streams, carp frequent pools of medium depth. At certain times, you'll see them move out onto the riffles, perhaps for crayfish, but this isn't standard behavior. When you do find them in shallow water, they "spook" at the slightest provocation.

The downstream sides of small dams or similar stream obstructions are excellent places for carp to congregate. Sometimes it's hard to keep a bait on the bottom where water boils as it does beneath a dam. But if you succeed, you're in good position to connect. In one such pool no larger than an average living room, I saw one angler take 14 carp. One was a 22 pounder. Presumably the fish had worked upstream from the Ohio River about 15 miles away.

Usually it isn't too difficult to keep your bait on the bottom, even in moving water, and at the same time eliminate drag when a carp takes the bait. Obtain a supply of the type of sinkers through which the line can run freely. These should weigh about one-eighth ounce each and should be located just a few inches above the baited hook. A taking carp can thus run easily, pulling the line freely through the sinker.

The sinker has two purposes. It's necessary as a casting weight and it serves to get the bait on the bottom where a current exists.

There's little doubt that importation of European carp more than a century ago was unwise. But like starlings, English sparrows, Norway rats, and boll weevils, they're here to stay. Like brown trout and ringneck pheasants, they have accumulated a million and more fans, furnish a considerable amount of sport and relaxation.

Several years ago, after receiving my first spinning outfit, I hooked an 11-pound carp. I've never had a freshwater fish wage such a battle. Not even heavier muskies and Northerns measured up. So—since I have to live with 'em—I'll fish and vote for 'em, too.

tips on

monofilament

(for spinning lines and fly rod leaders)

WE NEED not be ancient anglers to remember when we thought Japanese gut made acceptable lines or leaders. The stuff was pliant and nearly transparent in the water—until it was used awhile. Then, it turned white and as limp as a piece of wet grocery string.

Jap gut was cheap, while good silkworm (or so-called "Spanish") gut was expensive. But silkworm gut was fine, sturdy and nearly invisible in the water. Fly rod anglers who wanted the very best would use nothing else. Many of them still feel that way. But, if so, they probably have not tried leaders tied from the newest developments in monofilament nylon!

Monofilament nylon is approximately as fine, as strong, as pliant and as invisible as the best silkworm gut. In addition, it is very inexpensive and it does not need an hour or more of soaking in water or glycerine solution to make it pliant. Nylon monofilament is so easy to tie into fly rod leaders and tippets that anyone can make his own—and save money! Spinning anglers know that it is tops for spinning lines, too. It is not generally realized, however, that monofilament nylon can be obtained in a very wide selection of diameters and in a range of strengths from 6X up to fifteen pounds test or more. If you haven't cast tapered leaders made from it, there is a treat in store for you!

One can find three types of nylon monofilament on the market—and there are important differences between them. Of the three, the international opinion seems to be that imported

by joseph d. bates, jr.

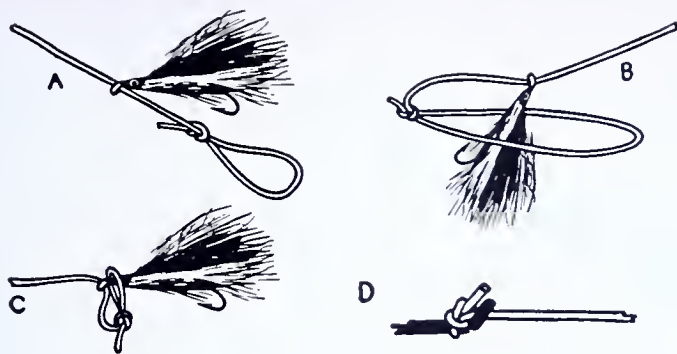
French nylon is superior. This partly is because French nylon was made especially for fishing—with the correct amount of stretch and suppleness. Foreign spinning anglers have used almost nothing else for many years, and have developed it to a remarkable degree of perfection. Anglers who know their nylon usually consider that the French type has smaller diameters for its

strengths, and that its strengths are extremely dependable. The French product costs a very little bit more than its American counterparts, but who wouldn't pay a quarter or so extra for its advantages when it may make all the difference between catching a big fish or losing him?

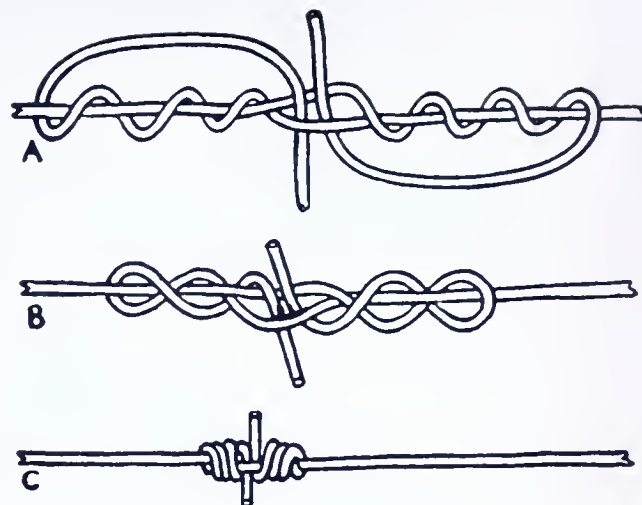
Most famous and most popular of the French brands is "Tortue," which



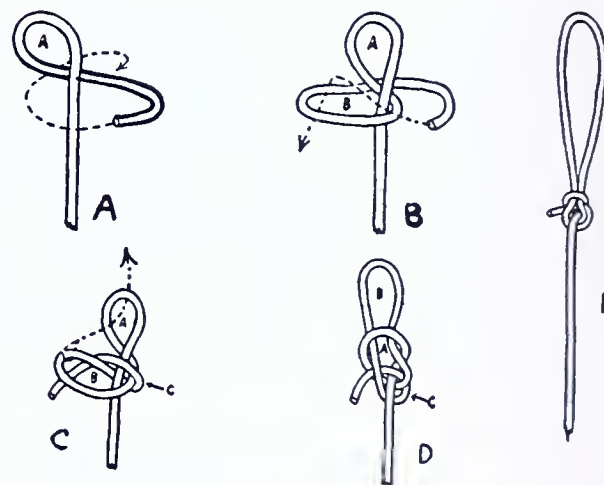
One famous brand of nylon monofilament offers tippet sized strands in 55-yard lengths on tiny plastic spools which allow excess line to be reeled in. The transparent reel-like box protects tippet material from abrasion while in angler's pocket.



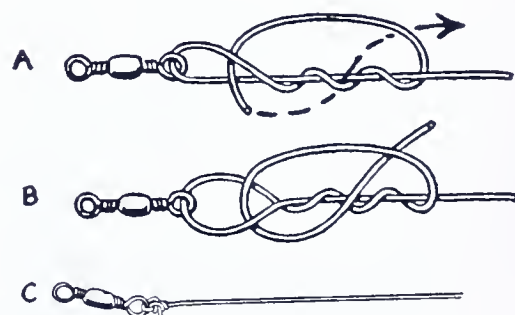
The "turtie" knot, for tying to the line or leader any lure having turned up or turned down eye.



The "Barrel" knot, for splicing lines, for joining strands in making leaders. For tying droppers, etc.



The "perfection loop" knot, for making noose to attach line end to spinning reel spool, for making leader head loop, etc.



The "improved clinch" knot, for tying swivels, keels, ringed eye lures, etc., to spinning line or fishing leader.

comes conveniently spooled in 110 yard lengths in sixteen sizes from one and a quarter pounds test (6X) to fifteen and a half pounds. "Tortue" (finished on a thin black plastic spool) is dyed a nearly invisible grey-green color; ideal for spinning and for leader tippets. Half a dozen spools or so, in favorite sizes, will provide enough leader material to last for many years!

The other two types of nylon come from our side of the pond. The old type was much too stiff and wiry, a reason why some anglers were not overly fond of it for fishing.

Lately, however, a new nylon formula, called "Type 4," has been put on the market. This is much more pliant; approximately as much so as "Tortue." Both of these American types are made by duPont. The latter is far superior to the former.

During the past season, some highly exaggerated claims have been made for certain American nylon brands. Some are promoted as being far stronger or more supple than others. This may be true when the two American types are compared but, since all American nylon is made by duPont (to be dyed and respooled by tackle manufacturers, or converters) I shall leave it to the gentle reader to form his own opinion. Maybe secret passes are made over it after it leaves the mother plant but, if the duPont product could be improved, we can be pretty sure that the extensive duPont laboratories would do it. I am not aware that there is any difference whatsoever between modern American monofilament lines, except in their colors and in the appearance of the spools.

Anglers who buy nylon monofilament always do not realize that it can have too much stretch or too little; that it can be too supple or too stiff. Of course, there is a happy medium in all this. The ideal line or leader is supple

enough to cast well; but not so supple that it becomes string-like. It must have enough stretch to provide resiliency against the strike of a fish; but must not have excessive resiliency approaching that of a rubber band. These are some of the reasons why monofilaments such as "Tortue," which are made especially for fishing, are superior to substances merely adapted to the purpose.

Another quality to look for is the monofilament's knotting ability. "Tortue" is exceptional in this respect. I have used it for years and have taken many big fish with it, but never have had a correctly tied knot pull out. Knots always should be drawn tight slowly, and should be tested to be sure that the coils have set properly.

The excellence of modern nylon monofilament for spinning lines is without question. It is less absorbent and more true to strength than braided nylon. It is less abrasive to rod guides. It is smooth and ideally supple for extra-long casts. It needs no leader, since it is a leader in itself.

My tackle box contains a dozen or so excellent Spanish gut tapered leaders which probably never will be used. Nylon monofilament seems fully as good, and is far cheaper. Since it needs no soaking, it is always ready for use. I keep a spool of each of the sixteen sizes of "Tortue" in a small wooden box I had made for the purpose. The spools fit in the hinged top box comfortably and revolve on a removable wooden spindle built into the box.

Half a dozen spools in varying sizes (such as ZZ, Y, T, R, O and L) are enough ordinarily. This type of monofilament can be purchased at any good tackle store on 110 yard spools in sizes from 2.2 lbs. test (L) to 15.4 lbs. test (ZZ), or on 55 yard tiny dispenser spools in sizes from 1.25 lbs. test (E) to

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Well . . . WHAT'S NEXT?

By LEE WULFF

Author of the Angling Classic, Lee Wulff's New Handbook of
Freshwater Fishing

(J. B. Lippincott Company, Philadelphia, Pa.)

(See review in February 1952 Pennsylvania Angler)

THE latest of a long series of sure-fire methods of catching fish has come and receded to its true and minor place in the general scheme of angling. We are now in a lull . . . soon to be broken by some new cure-all which will insure magnificent fishing for all who follow the leader.

In this new world of wonder drugs and atom bombs it is not surprising we are in a mood to expect near-miracles. For years the black flies and mosquitoes chewed on us unmercifully until a swarm of startlingly effective substances suddenly appeared on the market. Penicillin led off the parade of new and amazingly effective drugs. DDT led the revolution in insecticides and 2,4 D patterned the new and easy methods of eliminating weeds and unwanted brush. Mushrooming over the top of all this is, of course, the atom bomb.

As yet our expected miracle substance in fishing has not yet come along and the odds are it never will. All of the miracle substances mentioned above are killers. They exterminate in a war in which there is no quarter. If we were interested only in killing or exterminating fish the stuff to do our job is here already. Rotenone is but a single example. On sober thought we realize we're trying to attract fish, not kill them. Our dream is for something Pied-Piper-ish . . . and even then, with reservations. We've had a lot of flops in the bait anointing business but if, by any chance, someone does develop a juice which, when squirted on any lure or

bait, will make it irresistible to game fish its permissible use will be short lived. Whenever in the past we've found that certain species are too readily caught by any method we bar its use; something already done in many instances. Though we are ever alert for something new most of us like fishing just the way it is and has been. Even if we could make catching fish much easier we'd soon regret it.

Remember the days when luminous paint first came out? At last we could see the clock dial at night without having to light a match or leave a bulb burning. In characteristic fashion the anglers rushed to buy luminous lures. I bought a nice fat plug that glowed with a purplish brilliance. The first black night to come along I used it. Its eerie glow was visible as far as I cast it. I thought every bass in the lake would come rushing out to whack it but only one small fish hit it hesitantly during several hours of trial. Only when I finally changed back to one of my time-tested favorites did I catch any fish. It occurred to me then that a bass which could see well enough to wallop all-black plugs on the darkest of nights didn't need a plug lit up in order to find it.

Magic is often suggested in the many fish calendars which have shown up periodically in angling's long history. The tables telling what time to fish and the calendars which rate the days to come in regard to their fishing potential have gained a swarm of devotees but as fast as one such system draws away enough anglers from any

stretch of water at any time the "un-informed" remnant has a lot less competition and ends up with a greater per-angler catch. Certain it is that no calendar or time of day system has yet left a vacuum of good, open, unfished water at any time of day or month. If there is such a vacuum within easy reach of our metropolitan areas there is a horde of eager anglers who will say, "To hell with the calendar. Just let me have the good water to myself on the bad days," and rush there to fill it.

It wasn't so long ago a swarm of anglers were buying pocket barometers. Maybe now they've figured out that all a fish has to do to change his outside pressure is to move a few inches nearer the surface or to sink a little farther down in the water. A recent survey by a responsible group could find no evidence that fishing a rising barometer was any better or any worse than fishing one on the way down.

Mechanical gadgets are generally more useful than irresistible lures but some ridiculous mechanical ideas keep reappearing periodically. Right after the war a manufacturer, predicting a revolution in rods, came out with a hollow, guideless *bait casting rod*. It was well made, resplendent in black and chrome, and the line ran through the middle of the springy metal tube. The only trouble was it wouldn't work. The idea was as old as the civil war and as unfortunate. A tournament caster in a gymnasium could cast the

(Turn to page 30)



THE line is probably the most "taken for granted" single item in the average fisherman's kit. When purchasing a new one, even those who do considerable fishing and therefore should know better, make no further queries after they once ascertain its price and pound test. Some few make no distinction between fly casting and bait casting lines; letting one serve the purpose of the other simply by switching the reel from one rod to another. You as well as I have encountered fishermen using their bait casting reels on fly rods.

Apparently, the only time some anglers experience qualms about their lines is when they have tied on to an extraordinarily heavy fish. Then they fuss and worry, blame everything but their neglect and carelessness if the fish is lost. Only last year a fishing crony of mine who has accompanied me on a dozen or more Canadian fishing treks, lost a beautiful squaretail, the line snapping as the fish was being brought to net. I wasted no sympathy on him when he finally admitted he had used the line for nine or ten years. He couldn't remember exactly.

If the primary objective of the angler is to catch fish unattended by the sport provided by a properly balanced outfit, then, the only requisite of the line is that it is heavy enough to cast. A doctor friend of mine planning a trip into the Emerald Lake country of Ontario burdened one reel with a GBG tapered line and two others with C level lines. His heaviest rod weighed 5½ ounces.

"But, those lines are designed for bass or even salmon rods," I pointed out.

"Yeah, but they'll be easy to cast," he grinned. He was going on the assumption which altogether too many fly rod men entertain, i.e., the heavier the line the better it will cast; many of them not experiencing the real ease of casting until for some reason or other, they select lines that fit their rods.

The doctor reported a splendid trip. Three and four pound speckled trout and one five-pounder were caught as a matter of course.

"But," he added, "one of my rods, in fact, my custom job, went haywire."

"Sounds mysterious," I said upon recalling the size of his lines. "What happened?" I innocently enquired.

"Didn't hold up," he complained. "It developed a pretty bad set."

One can hardly imagine a skilled angler not using a suitable line. The skillful handling of both lure and flies makes the use of a line in tune with the rest of the outfit a foregone conclusion. The rod, line, leader and even lures must be in perfect accord with each other.

A tyro fly fisher who had been completely carried away by the skill and ease of handling displayed by an expert was baffled by his inability to make his outfit behave. Since he didn't want to invest in the price of a good tapered line, he bought one which the clerk said would work. Well, it did once in a while, but almost invariably the leader would settle to the water in a perfect bird's nest. Then, when he used steam enough to straighten out his leader, the fly would snap off. The fault was not inherent with the line, but the various components of his outfit plus the small flies he was using were not properly balanced. He would have done no better with a tapered line or even a better level one.

If there is anything that thrills me more than an expert fly fisherman plying his sport, I don't know what it is. The consummate ease and finesse with which an expert handles a long line fascinates me no end. Without apparent effort the line indolently swirls backwards in a graceful parabola only to double on itself and come forward with the same unctuously lazy motion. At the same time the leader reaches out to drop the fly on the desired spot. It is the perfect combination of skill plus a properly balanced outfit.

Would you pay ten, twelve or even as much as twenty bucks for a fly casting line? Well, when I plunked down twelve dollars for thirty-yards of double taper fly line, I anticipated no less than miraculous results and that's exactly what I got. As I recall, it was an HEH tapered job. When combined with my standard action 4½ ounce split bamboo wand, it was a dream. For several days after acquiring it I practiced hours on end just for the sheer joy of feeling its action.

That line had everything necessary to bring out the best in my rod. Besides

the right fly line

by

n. r. casillo

weight it had flexibility for easy strip-ping and enough body to prevent most of those confounded kinks which harass the fly angler. In addition it had a glassy smoothness which enabled it to shoot out through the guides with the speed of greased lightning. Yes, it was a perfect line, almost. Oh, for dry fly work it required an occasional "greasing," but for most fly fishermen that's a labor of love.

So, there you have it, an HEH double taper, suitable for rods ranging from three to 5½ ounces providing that the heavier job is very whippy. And with the precision manufacturing methods in vogue today coupled with the easy availability of superior raw materials, the fly lines of today are

(Turn to page 29)





BOATS . . .

for fishing fun or family pleasure

By DON SHINER

BOATS play an important role in fishing just as they have since the beginning of history. In fact, one would have to delve into the prehistoric past to learn when early fishermen adapted this craft to their livelihood, but the first mentioning of boats and the foremost inventors are lost in antiquity. Like the modern motor car which fundamentally began with the invention of the wheel, the evolution of the boat began with the floating log. Some prehistoric genius discovered a log was buoyant and would support his body in water. The first means of crossing lakes and streams had this humble beginning. Following this another obscure genius made a raft by tying numerous logs together and found it would permit his body to stay above the waterline and remain relatively dry when afloat. Then came the log boat made from a hollow tree. This innovation gave birth to the dugout canoe and in other waters the birch bark canoe and kayak came into being.

It is safe to say that boats and watercrafts were among the foremost means of transportation. With few roads or trails other than those made through the small villages, the waterways—rivers, lakes and oceans—provided the natural routes of travel. Boat building advanced among the peoples on all continents. The American Indian and his canoe, the dark skinned natives of South Africa and their dugouts, to the more advanced civilizations in Europe with sailing ships, the boat was used to journey to far away lands and for gathering fish and other food for the villages. Fishermen even at this early age realized floating crafts enabled them to reach new and otherwise inaccessible fishing grounds.

(Continue Article on page 26, more photos on pages 16 and 17)



8-FOOT PRAM with square ends is made of marine plywood, can be used on small lakes and streams, weighs slightly more than 75 pounds, good for carrying on car top, moving from one fishing spot to another.



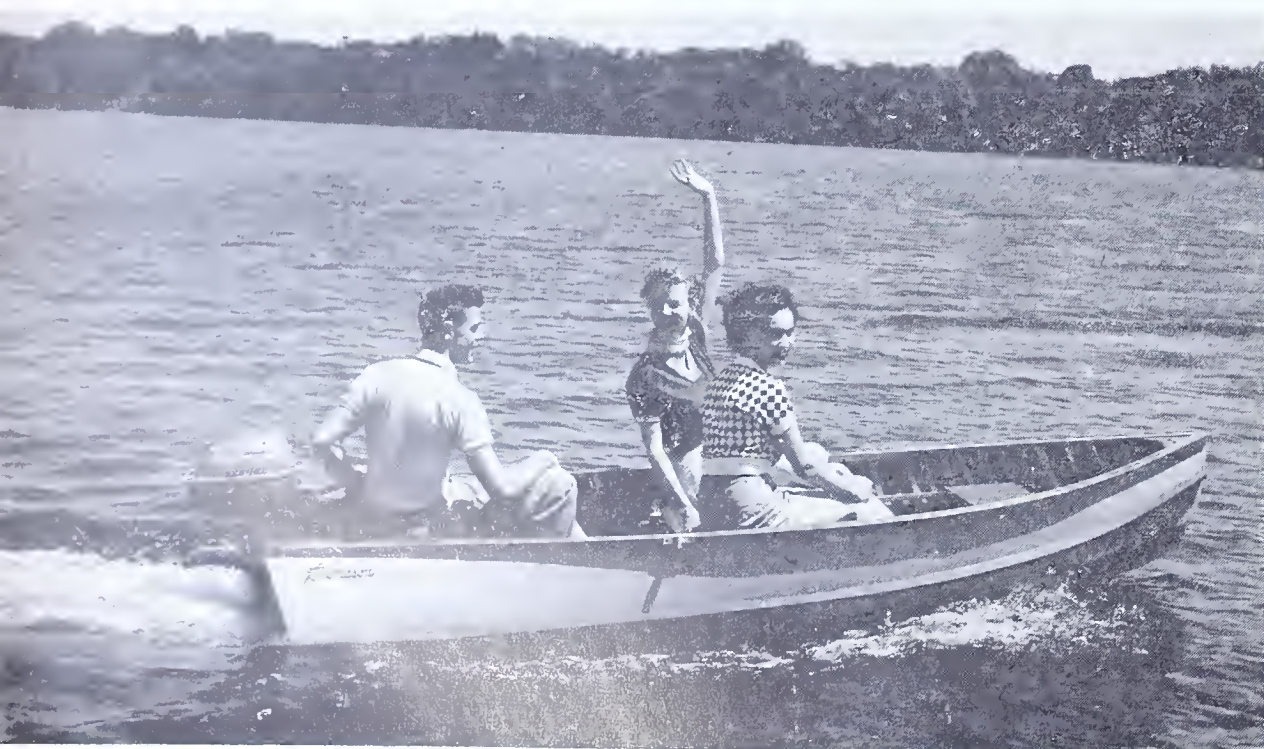
ROUND BOTTOM boat is typical of its kind, best with light motor, is made with thin strips glued over a ribbed hull, light in weight, easily rowed, handles well with outboard motors up to 7 hp.



STAINLESS STEEL row boat handles well with oars (muscle power) or motor. Air chamber under front and rear seats buoy the craft if it turns over. Metal boats are sometimes quite noisy but not entirely objectionable to most fishermen.

JOHN-type boat with low sides, square ends and flat bottom, choice of many anglers, is one of the best boats for the home craftsman to build, makes substantial, faithful fishing craft.



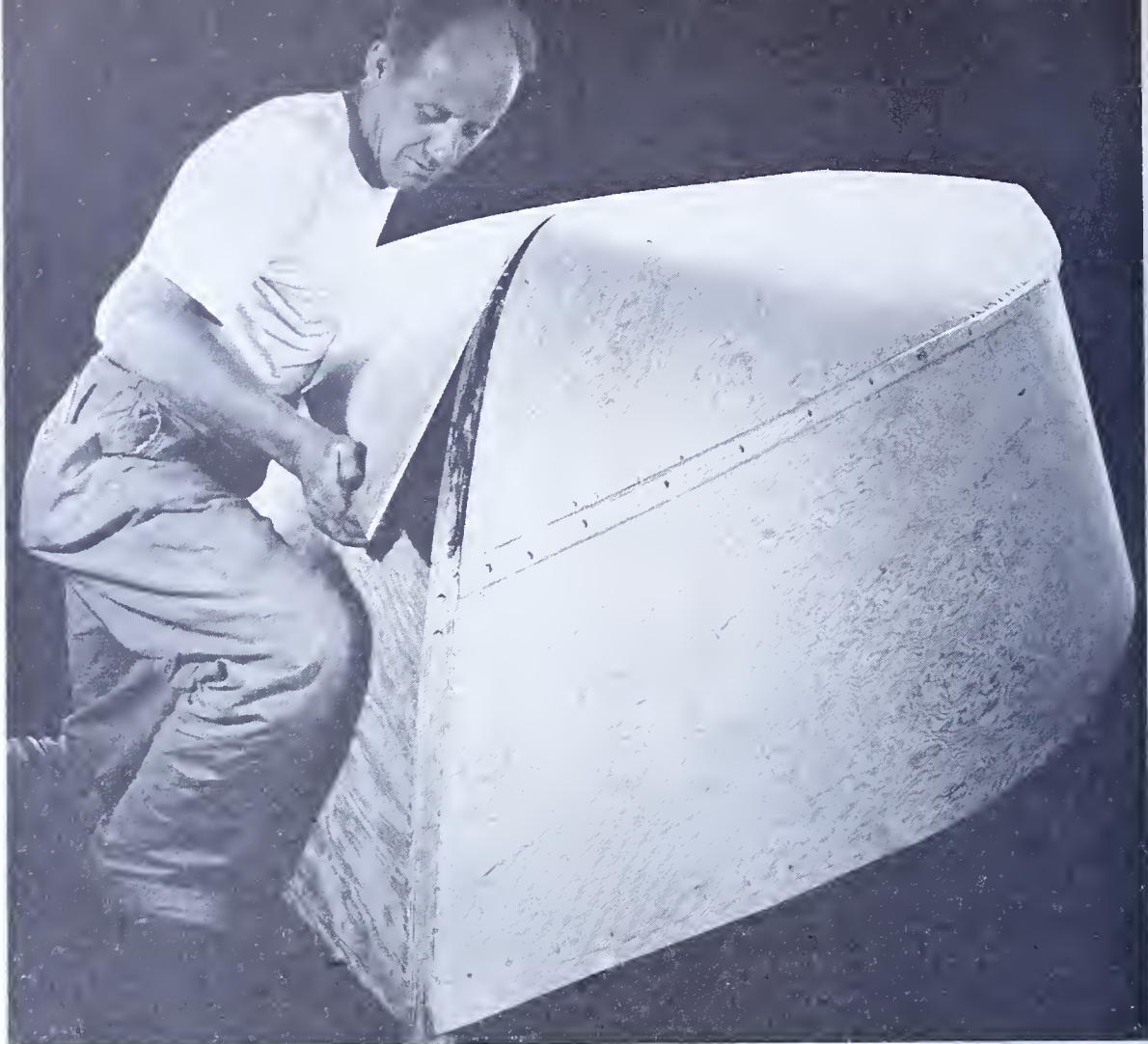


DOUBLE DUTY, 12-foot craft
ideal for either fishing or fa
pleasure, weighs only 90 pou
easy to handle, roomy for its

L BOATS are rapidly becoming popular with Pennsylvania skippers who not only love to sail before the wind but like to troll a line on a lazy day. There's always something mighty pleasing and intriguing about a sail.



CANOE is favorite of many on sheltered lakes or ponds, can be fitted with up to 3 h.p. motor, this ancient craft is now made in canvas, stainless steel or aluminum, glamour added, a far cry from the Birch bark canoes of our early American Indians.



FITTING IT UP is most interesting task for those who build their own. Most manufacturers of kits declare it doesn't take a carpenter or woodworking expert to put them together, few tools necessary. It provides a good wintertime or early spring hobby for a real fisherman.

Building From a Boat Kit

By KEITH SCHUYLER

BOATS, from the size of a one-man kayak to the new United States, biggest and fastest ocean liner ever built by this nation, are made for one purpose . . . to carry man over the surface of the water. Building one may employ the energy of one man confined to his winter-bound cellar, or it may take thousands of men who derive their living from the task.

But, the primary purpose of all lighter-than-water craft remains the same . . . to carry man over the surface of the water.

Of the kayaks, scows, rowboats, canoes, etc., that have carried my weight, a relatively few have served their primary purpose. Most of the time was spent sitting in or bailing out the water over which I was supposed to be riding. This, of course, has been the result of renting the first water conveyance available to the ponds, lakes and rivers reputed to abound with fish.

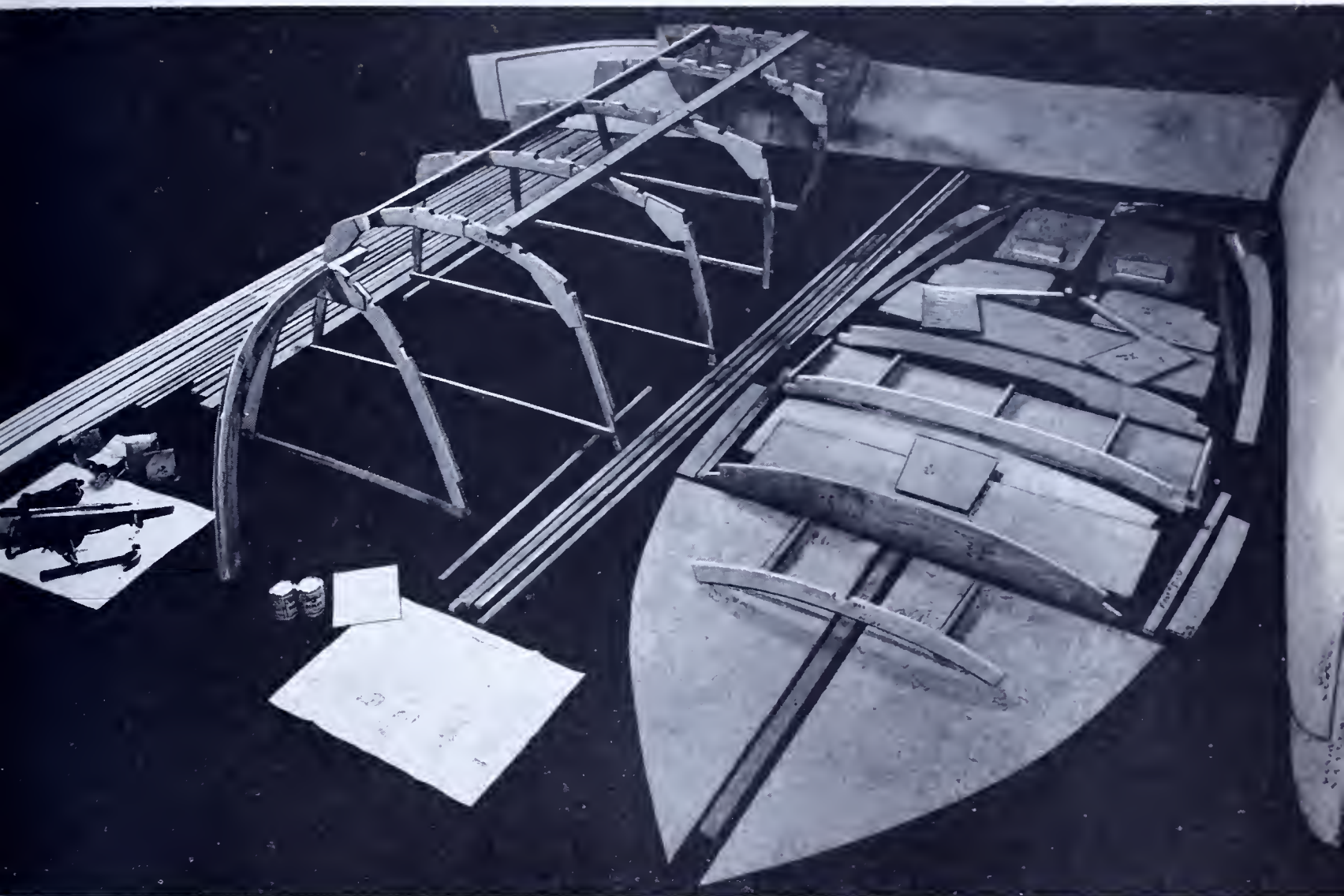
If your experience has been similar, there is only one answer to the problem.

Build your own boat.

Building your own boat can be a most satisfying experience. It will give you a real sense of accomplishment, keep your wife unpleasantly aware of your whereabouts while it's being built and provide you with a craft that you can name for her. On the other hand, if you don't follow the instructions carefully, you may end up with a contraption useful only

(Continued on page 26)

TYPICAL BOAT KIT might seem confusing until you read simple plans accompanying every boat kit. They're available in a variety of shapes and sizes, cost is low.



LITTLE PRAM doesn't look too stable but is surprisingly able to take it, makes a nice utility skiff, handles and rows easily, can be transported with minimum of effort.



advantages of fishing from a boat

By THAD A. BUKOWSKI



STURDY BOAT without leaks is answer to angler's prayer. These fellows know safety rules and regulations, carry fire extinguisher, a mighty necessary item, life preserver seat cushions.

THE USE of a boat in fishing provides us with the dynamic type of fishing that most fishermen look forward to with relish everyday. True, one can plug, spin, or flycast to his heart's content following a lake shoreline, or even wade up or down a stream or river, but not with the relative ease that one has in comfortably and casually riding a craft. Especially when those obstructive places appear where masses of willow cluster the water's edge, or the depth of the water is far above the boottops to provide for effective or even safe wading.

There are as many ways in fishing from a boat as there are in fishing from a shoreline—in fact more. Additionally, a number of cautions must be observed, too, for safety in fishing. Primary among these are staying seated, not wearing boots in case the boat for any reason is overturned, not riding across choppy waves instead of into them, and, of course, not overloading. Some fishermen get into the boat with the idea of riding it as though they were conquering heroes of the Viking type; such action eventually ends only in a late realization of the foolishness of the would be expert. At times this foolishness may cost the life of the party himself or of some innocent bystander only indirectly tied in with the act.

Wherever fished, a boat should be well anchored at both ends. This is more important when one is still or bait fishing. A boat anchored only in one place drifts around with the changing wind and one cannot then determine effectively whether

(Continued on page 28)

BIG ONES are reached on large lakes or rivers via a good safe boat. Most fishermen are familiar with safety regulations yet many lives are lost every year in waters of the Commonwealth because someone got careless. We see many anglers wearing heavy boots and shoes in a boat . . . it's a mighty good way to get to Paradise! Wear light sneakers or shoes unlaced, easy to kick off if things go wrong. °



YES, FRIEND, we admire your catch but sit down! More boating accidents are caused by people suddenly getting to their feet, overturning the boat. This scow is usually what the angler rents for a fishing trip, it's fairly safe but hard to row.



Fisherman's Paradise Regulations

RULES AND REGULATIONS—SPRING CREEK PROJECT—SEASON 1953

1. **OPEN SEASON**—May 15th to July 18th, both dates inclusive.
2. **OPEN**—from 8:00 A.M. to 8:00 P.M. (Eastern Standard Time) or until Klaxon is sounded.
3. **ALL ANGLERS MUST PERSONALLY REGISTER BEFORE FISHING AND PERSONALLY CHECK OUT AND RETURN IDENTIFICATION BUTTON BEFORE LEAVING PROJECT. NO SUNDAY FISHING.**
4. **FISH IN THE POSSESSION OF ANGLER MUST BE DISPLAYED AND CHECKED AT REGISTRATION BOOTH WHEN CHECKING INTO PROJECT. FISH NOT SO REGISTERED WILL BE CONSIDERED AS HAVING BEEN CAUGHT ON THE PROJECT.**
5. **ANGLERS MUST PARK AUTOMOBILES BEFORE CHECKING IN AND MUST CHECK OUT BEFORE REMOVING AUTOMOBILES FROM PARKING LOT.**
6. **DAILY LIMIT**—Only **ONE FISH** may be killed. The Angler must stop fishing after **ONE FISH HAS BEEN KILLED.**
7. Only artificial lures of hair or feather construction with barbless hooks or regular hooks with the barbs removed may be used. No spinners or swivels permitted.
8. Fishing with, or possession of, any live bait, angle worms, meat, liver, or any other bait, is a violation of the rules and regulations.
9. **SIZE LIMIT**—All fish caught from large stream under 10 inches in length and on ladies stream under 7 inches in length must be carefully returned to the water.
10. All anglers holding a Pennsylvania Fishing License will be permitted to fish five days during the season.
11. The dressing or cleaning of fish on the property is prohibited as all fish must be weighed when checking out
12. **POSITIVELY NO WADING**—in the stream for any purpose permitted.
13. Sinkers or lures not exceeding the weight of 2BB Shot are permitted. No casting or spinning outfits permitted.
14. Feeding fish **PROHIBITED** except on Sunday.
15. Assisting in hooking or landing fish prohibited. All foul hooked fish must be carefully returned to the stream.
16. Violation of the rules and regulations will be subject to a fine of Twenty Dollars (\$20.00), revocation of your fishing privilege on the project for the balance of the season, and revocation of your fishing license.

If you like this project you can help the sportsmen of the state by obeying these rules and reporting any infraction to the officers.

Section 251 of the Act of May 2, 1925, as amended, provides the Pennsylvania Fish Commission with authority to promulgate such rules and regulations for the angling, catching or removal of fish in or from any waters of this Commonwealth as may be deemed necessary. Penalty for violation—(\$10.00) for each fish caught, taken or had in possession, contrary to these Twenty Dollars (\$20.00), and in addition thereto may be fined Ten Dollars rules and regulations.

STREAM PRACTICES WISE AND OTHERWISE

(From page 3)

ranging from mild annoyance to disaster.

It is not generally known that if surplus baitfish are packed in dry salt and kept reasonably cool they will keep several weeks. They retain their color and become toughened. Where a spinning minnow is used the "salty" as it is affectionately known by anglers is preferred to fresh ones. If we use salt packed minnows we eliminate

waste and the possibility of any escaping and becoming a nuisance in waters where they are not desired. The inconvenience of the minnow pail and its care is eliminated. Also it is no longer necessary for the wading angler to come ashore each time a change of bait is indicated as the salted minnows are not as slippery as fresh live ones. Obtain your minnows from a reliable dealer who operates under state supervision.

There is another abuse that causes the blood pressure of lovers of the outdoors to rise alarmingly. It may not ruin fishing along a lake or stream but it destroys the setting which is part of the enjoyment of the sport. I speak of the practice of dropping rubbish

consisting of everything from lunch papers, empty gin, beer, bottles, worn rubber boots and worse. It is generally the most scenic spots that, in spite of regulations, collect the most discards. Trees, shrubbery and wild flowers are vandalized. Dogwood, azaleas, moccasin flowers and arbutus are but a few flowers that beautify our stream and highways carried home as bouquets only to find their way to the garbage pail in a few days. In their native habitat they bring joy and beauty to wayfarers for years.

Let the users of live bait seek substitutes among the terrestrial species or buy the aquatic varieties only from dealers propagating them for sale under existing regulations. Better still, switch to the more sporting artificials. Angling in fresh water streams has long ceased to be a means of filling the larder cheaply. Fish for food can be purchased more cheaply in time, money and effort at the corner market.

It is time certain individuals stopped exploiting our waters for selfish reasons. If we do not act now future generations will curse our shortsightedness in the stewardship of their heritage. To those who will not follow the rules of conservation I am still an advocate of giving them a treatment of stone age law administered via club and fang.

IS FISHING FOR GIRLS?

(From page 5)

more of this than boys. Girls come by knot-tying naturally. Due to superior motor coordination and flexible wrist rotation, girls at two and three can dress themselves so skillfully that they may dress and undress, knot and un-knot their shoe laces, just for the fun while boys of five and six still have difficulty buttoning themselves. The boy's poor wrist rotation may be observed in hand-washing and opening doors. He is unable to do the customary rotary movement to wash hands and instead must rub his palms together while he has difficulty as well opening doors because of his inability to turn a doorknob far enough. What's more, this manipulatory skill difference between boys and girls persists through adulthood.

When boys and girls are six, the boys are usually at least a year behind in physical and mental development and

PENNSYLVANIA ANGLER

the mental difference persists into adulthood. However boys seem to be brighter at creating original ideas and working out problems and puzzles while girls have better memories, they can recall situations better, and have bigger vocabularies. If it may be interjected now, girls are more given to exaggerate their accomplishments which psychologists say means that they are less sure of themselves—but translated into fishing ability, it means they are better endowed by nature to tell whopping good fish stories.

As for leadership, it is just about a toss-up. With three groups of children at play over a period of time, Iowa State University researchers found that girls were more dominating and commanding than boys. Other studies have reported that boys are more masterful, and still others that neither sex has an edge. It boils down to this: some girls and some boys tend to be leaders; others do not. Within each sex, apparently, there are much bigger differences than between the two. Both boys and girls, however, do like to help their parents in such chores as cooking trout and chopping wood, especially if they get a couple of resounding bravos for each and every chore well done—but this pertains to the proper educational aspect of starting the beginner out right which we will consider presently.

There remains the problem of basic interests—is a growing girl by nature as interested as a boy in fishing? The answer is: "Yes, providing . . ." "Providing" concerns our present cultural set-up which is changing.

A subtle though profound change has occurred in our cultural patterns about man's place and woman's place in the outdoors. For the first time, women are entering into men's outdoor sports in vast numbers—particularly fishing—with the result that there are more women sports fishermen today than there were men sports fishermen 25 years ago. Last year almost three million women took out fishing licenses. This year may well exceed that figure.

But yet, there is a malingering of old cultural beliefs particularly among fishing fathers. They feel it is never too early to start a boy developing masculine traits and interests and to limit the girl's activities to things which will tend to make her feminine. As a result, from babyhood on, boys and girls are expected to play different games, enjoy different interests and most parents are upset if the son or daughter deviates from the traditional cultural pattern until the daughter is grown up . . .

then it is all right to go fishing. Yet, according to officials of the Family Service Association of America, many a normal boy never cares much for fishing and plenty of girls aren't too crazy about dolls and tea parties.

Now, based upon our realistic approach, what is my answer to my daughters' question: "Daddy, when are you going to take us along fishing?"

Certainly, they will accompany me fishing but first to insure their loving the woods and the fine sport of fishing, I want to bring some practical educational factors to bear. Fishing can be too important in their lives to jeopardize making their first trip their last one. These, then, are the precepts:

1. Take your daughter fishing when she is strong enough and do not make it too exhausting. (Of course the same applies to the boy who may be even weaker than a girl of the same age, before puberty.)

2. There is good light tackle available today—better than ever before. I will see that she is properly outfitted.

3. Next, to insure a modicum of success on the girl's first trip, give her some of the fundamentals of casting at home where it is not so difficult and where the parent will not become impatient and associate displeasure with the fishing area. Associations at the stream or lake must be pleasant.

4. Ample provisions must be made to give the girl other things to do besides fishing. A youngster's span of attention is always short, even at their most favorite game. Hence, to enjoy herself she must have a variety of things to do—horseback riding, playing softball, running, skipping rocks on the water, cooking, perhaps reading.

5. See that actual fishing success attends the first trial. If necessary go far enough back where the fishing is good—or if that is too exhausting, take her to a commercial fishing pond. And then do not fail to give a resounding bravo when she casts properly and, by chance, takes a fish.

6. To make the trip memorable, explain the interesting facts of the "whys" of the fish and the stream to the girl. Help her net the fish and then clean it together—showing the wonderful placement of the organs; investigating, too, what the fish has eaten last; and then, best of all, let her cook her own fish near the water—thereby multiplying, if possible, every pleasure: having success, doing a variety of things, learning new things about the outdoors, and finally, filling the stomach!

7. And as a second reminder, limit the arduousness of the undertaking—don't overestimate the strength of your youngster—and as she gets older and proportionately weaker while the boy becomes stronger, limit her activity in an unobtrusive manner so that everyone will be happy and enjoy the outdoors. And that, after all, is the prime reason for fishing.

YES — I REMEMBER

(From page 7)

I kept our little secret to ourselves and all that summer we continued to have sport with those bass in the creek and raceway. In fact, we fished the area for two years, but like all good things, they always come to an end.

On our first trip the third year we learned to our sorrow that the old mill had been torn down, the raceway was blocked off and in spots where a bit of stagnant water remained, nothing but tadpoles were visible.

Meanwhile, having grown older in service, our pass rights permitted traveling to more distant locations. Eventually we reached the stage where we got into New York, Michigan, Indiana, Kentucky and Maryland.

Yes, I remember those good old days,



POLIO

Research

will mean

Victory!

GAMMA GLOBULIN—
obtained from human blood—
protects for a few weeks.
But it is in very short supply.



When POLIO is around,
follow these **PRECAUTIONS**

- 1 Keep clean
- 2 Don't get fatigued
- 3 Avoid new groups
- 4 Don't get chilled

A VACCINE
is not ready for 1953. But
there is hope for the future.



THE NATIONAL FOUNDATION FOR INFANTILE PARALYSIS

heading anywhere where the pass rights permitted, if we heard of fishing that was good.

During the early years of the 1920's we became acquainted with Hon. Nathan R. Buller, then Commissioner of Fisheries. At about the same time our favorite stream then was the Connequenessing Creek. In those days we rode the now defunct Harmony Line to what was known as Allen Stop, below Zelienople, staying with folks who lived on the banks of the stream.

For a number of years we enjoyed the fishing every Saturday, Sunday fishing being something yet to come.

Once, when it was necessary to go upstream after darkness had fallen, we equipped the bow of the flatboat with a spotlight operated from the battery of a car. As we made our way upstream hundreds of fish jumped from the waters in what seemed to be a frantic effort to escape the beams of the light. We were dumbfounded by the number of fish which we now knew resided in the creek, though we always had good fishing. It was just unbelievable.

By this time we had given up rail-roading and were back at our former employment, being the shipper at a local packinghouse. Several of the chaps under my supervision were interested fishermen.

In those days the Fish Commission had no trucks by which it hauled the fish to the streams. Fish for stocking were shipped by express to individuals or organizations who made application for them. When a shipment was due the consignee was notified by mail to be present at a certain railroad station at a certain time to pick up the shipment.

Having under my jurisdiction a fleet of trucks and a cooperative boss, George A. Hess, we were always in a position to take care of the consignments which may have been to the "Conny," Breakneck Creek, Glade Run, the little "Conny" and sometimes as far as our oldtime favorite, the Little Beaver.

Yes, we remember how we used to await the arrival of the train with the cans of fish and the messenger which accompanied them. On one occasion one of the consignees failed to appear and since the messenger had other shipments to drop off along the line he asked whether we would like to take the additional cans off his hands. Naturally, we were more than glad to oblige him. After that we made certain we had a truck capable of hauling an additional number of cans, in the event

someone else failed to show up and more than once did it pay off.

Three of my drivers—Johnny Groetinger, who has since gone to his last reward, "Skinny" Ketterle and Dave Brubach—were the ones I depended on in those days to lend assistance. An assistant, Charley Mueller, was a standby and always a member of the party. Later my brother Edward joined in these planting forays. Lawrence Waelfel, usually, was another member.

At least two, sometimes several, such undertakings were made every year, and there were occasions when as many as 100 or more cans of fish were in the truckload. Fish were planted long into the night as frequently the train did not arrive until sometime during the evening.

As the number of stockings grew and the local people learned who was responsible the stream became known as "Johnny's Conny." I believe a chap named Ramsey christened it that way. Ramsey was one of the officers of the local chapter of the Izaak Walton League at Harmony and he and others of the organization began lending a hand with the plantings.

Finished with the work we used to assemble, sometimes at Redman's down on the creek or at some location in town and have a midnight snack, usually of sandwiches and coffee, then the 20-mile trip back to the city. At that time the Perry Highway was unpaved and in wet weather it was something to drive a big truck over the skiddy clay, but no one was ever worried.

Yes, I remember the day Gus Kappauf decided he would like to take a trip to our favorite stream to enjoy a little fishing. On more than one occasion he had heard the boys telling of the sport they enjoyed. Being one of our superiors, naturally, we were glad to have him.

It was a Saturday. We don't recall the month, but it was during the summer of 1929. We had done a bit of fishing in the morning. Gus arrived just as we were at lunch. A beautiful day and being in no particular hurry we finished our meal leisurely then made ready to see that the boss got some fishing.

We stood on the bank of the stream and as we glanced upstream noted several fish jumping from the water.

"See there," someone said, "they're just waiting to be caught!"

Then several more jumped from the stream directly in front of us.

"Boy, oh boy, look at that, would

you," said another, as he pointed up the stream. There were fish jumping all over. Downstream the same thing was going on.

"Hey, wait a minute. There's something wrong. Those fish never acted like that before. We better look into this," I remarked.

Soon several of us were in the flat-bottomed boat, making our way to the opposite bank where it was possible to wade. Floating fish were on all sides, some dead, others in their last struggle. There sure was something wrong. We picked up one of the fish and noted the gills covered with a reddish substance. Where there was a bit of backwater, apparently still OK, dozens of fish were swimming about—black bass, bluegills, sunfish, catfish, carp and others. It was here in the shallow water that we noticed the rusty-looking residue on the bottom.

We tried to save as many fish as we could, those still alive, but it was of no use. The stream was doomed, apparently, by the killing agency which had been emptied into the stream.

Who could have done it? Where did it come from?

A member of the party was the late Gene Madden, then president of the Millvale Chapter of the Izaak Walton League. I was the secretary.

It was he who suggested we try to locate the source of the pollution. Gus regretfully left for home while we lost no time in getting started.

Every possible source was examined although by now the color of the water left little doubt that it came from somewhere upstream, the tributaries being clear. We didn't stop for supper, but kept going. Finally, after about six hours of searching, our efforts were rewarded.

At an outlet of one of the mills just below Butler the telltale evidence ended. Beyond the creek was clear as crystal. On the banks, at the outlet, was a good deal of the colored mass which seemed to cause the trouble.

We had our polluter.

Matt Riley, of Ellwood City, was the member of the commission, then the Board of Fish Commissioners. Matt was a personal friend, in fact, so good a friend that we are still carrying the fishing license number he willed to us—but that's another story.

Being advised of what had happened, he contacted the office at Harrisburg. Thus one of the first cases of pollution, if not the first in that part of the country, became history.

The fine at that time was a pitiful

\$100, but a high official of the concern at Chicago, the home office, was the chairman of the Izaak Walton League Foundation Fund and when he was advised of the incident the company contributed \$1,000 to assist in the restocking of the stream.

For two years all went well. The "Conny" staged something of a comeback. Our restocking efforts were continued and many a can of fish was again hauled to the stream. Then, just about the time the future looked bright, in 1931, came another dose of pollution, probably just as bad if not worse than the first, although the number of fish were no longer present. This incident practically wiped out the creek, killing everything in it, even the turtles and the watersnakes.

The "Conny" was finished. We gave it up as a lost cause for there was no assurance there would be no reoccurrence. Our interests were to be directed into another channel.

Yes, I remember. It was about that time that a certain well-known official of the present-day Fish Commission was the secretary of the Northwestern Division of the Pennsylvania Federation of Sportsmen's Clubs, but in those days it was called a Council. At the same time I was the secretary of what was known as the "Western Division."

This chap lived at Ellwood City and having something of common interest

we got together at a local meeting. From then on we became friends and while fishing was one of our interests, predator control was another and one of the principal types of vermin, as far as the fisherman is concerned was the watersnake.

Let me tell you of one of these expeditions. We headed for a favorite fishing haunt of this friend, French Creek. Accompanying us was an assistant of mine, "Slim" Krause.

Arriving at Utica we went to work, upending every stone along the shore which could possibly have been the hiding place of a watersnake. In some instances we uncovered two or three. Sometimes it was more. These were the youngsters left to shift for themselves. When we had the shoreline rid of the vermin we went to the real work—the big fellows, the ones responsible for the little fellows under the rocks.

We had a perfect method. "Slim" would be armed with a good sized shillelah, used to dispatch the snakes as they were tossed ashore. My part of the undertaking was to slowly—very slowly, raise the submerged stones near the water's edge. The third chap would be out in the stream, equipped with a short, stout length of the branch of a tree or anything else which would serve the purpose.

The procedure was as follows:

Very carefully I would raise the

stone. The current washing beneath it would momentarily roil the water, then as it would clear itself the hiding snake would be revealed. Apparently the snake was under the impression while the water was cloudy it was unseen, but the moment it cleared and the snake saw both the chap in the stream and yours truly it would dart from its concealment. That moment was the signal for the "scooper" to do his stuff. As the snake got out of the coil and straightened out its length a swift heave would send the snake flying through the air. "Slim" was ready the moment it hit the ground. Usually one solid whack made it a good watersnake—a dead one.

Yes, I remember. How can I ever forget it. As the work went on we came to a good sized rock and as we slowly raised it we got a glimpse of the snake beneath it.

"Get ready," we whispered to our friend in the stream. "This baby's a whopper!"

The snake shot from beneath the stone. Like lightning the branch caught it midway in the body. A moment later it went sailing, but instead of falling to the ground it struck "Slim" on the chest, the momentum carrying the head and tail around his neck. Of course, it reposed there only momentarily, almost immediately dropping from its unwelcome host. We heard one frantic yell and "Slim" was running madly from the scene, waving his arms in a wild manner. He had lost all interest in the snake.

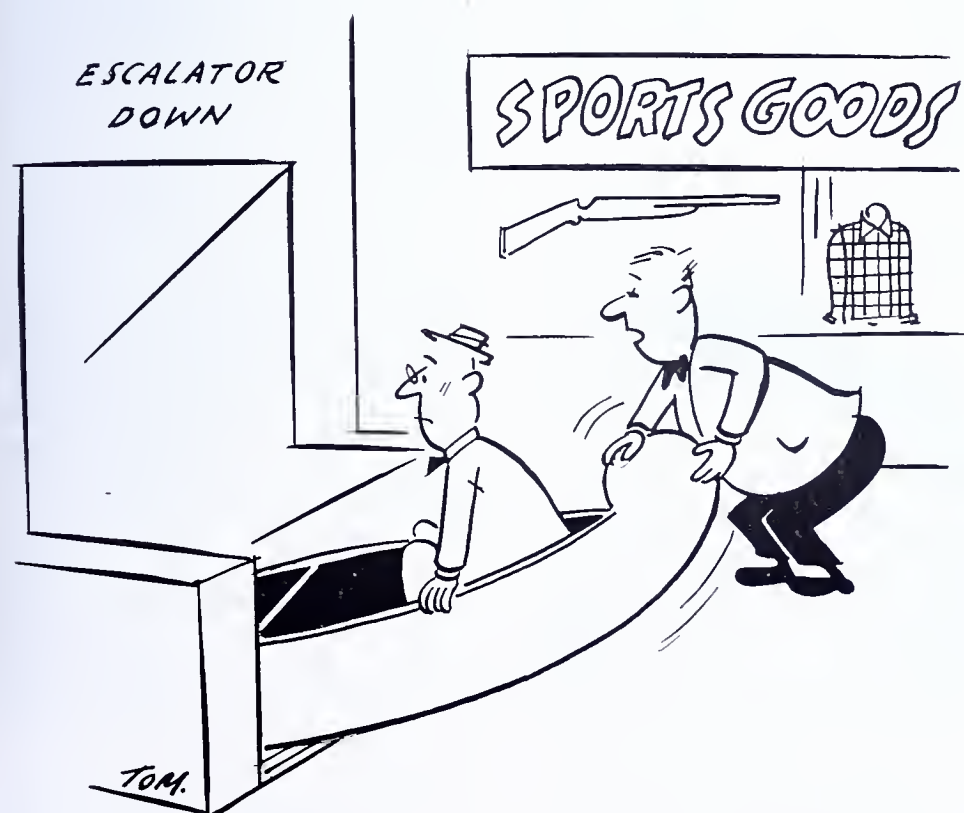
Only quick action by the chap in the stream who dashed ashore when he saw what had happened was the snake prevented from gaining the stream. That short weapon did double duty. It had not only scooped the snake from its hiding place, but put an end to its existence.

When "Slim" regained his composure we took an inventory of the afternoon's work. Believe it or not, we had dispatched more than 200 of the reptiles.

The third member of our party—the expert manipulator of the scoop—was none other than our very dear friend, the present executive director of the Pennsylvania Fish Commission, Charley French.

Believe me, we were snake killers of big caliber.

Yes, I remember. Our mutual friend Matt Riley received the call from the One who passes no one by. Charley was appointed as his successor and became a full-fledged member of the Board of Fish Commissioners. Later he



"Now, sir, you'll see how well it takes rapids."

became the Commissioner. Today he still holds that office but under another name.

Yes, I remember, a lot more that I could tell you, most of them pleasant memories, some which we don't care to recall, but still a part of what has taken place in our many years of association with sport afield and astream.

BOATS — FOR FISHING OR PLEASURE

(From page 14)

With the advancement of civilization, boat building began to flourish on a commercial scale. Prams, dories, sailing crafts and whale boats were being built for use on the open seas or the extensive system of canals or inland waterways. In Holland and other European countries and on this continent in the early 18th century, an intricate network of waterways and canals was built to handle the boating traffic of that day. Boats of all types were being experimented by commercial fishermen. Throughout history boat building and designing have advanced continually.

At the same time the development of the boat was underway, various means of powering the craft through the water were worked out. First came the poling of rafts, then paddling of canoes and dugouts. Later, oars and sails appeared and finally today we have reached the age of gasoline and diesel engines which propel boats through the water at various speeds.

It is small wonder boats and boating are so popular today among Pennsylvanians. Down through the six drainage basins in this commonwealth—the Susquehanna, Ohio, Delaware, Potomac, the Genessee and Erie section—pour 31-major streams as well as innumerable creeks from otherwise land locked lakes. It is because over 6,000 miles of streams and rivers and approximately 57,000 acres of ponds and lakes are confined in Pennsylvania so many folks are water-minded today. Few states have as many waterways navigable with small boats or offer such superb fishing. And whether fishing or family boating is desired the waterways and lakes are extensively used every year. Doubtless the greater percentage of boating enthusiasts are fishermen for they realize

that places in lakes once inaccessible are but a few minutes away.

Indeed, much of our present fishing revolves around boating. Float trips for bass down the major rivers, trolling for walleyes and lake trout, even bait fishing for panfish or bullheads involves going astream on some craft. The rowing, sailing, motoring or drifting on the water to far distant shores is one of the pleasurable events that adds to the enjoyment found while angling.

A variety of boats are suited to the major streams of Pennsylvania. Among these are the sailboats, prams, row boats and skiffs, canoes, kayaks, speedboats, inboard and outboard cruisers. The variety is so large it is a problem when a choice of boats is to be made. It is obvious all crafts are not suited for angling. Though sailboats, speed boats and kayaks will carry a fisherman to any point on a stream, certainly there are more practical crafts for the average fisherman. The selection depends largely on the type of water on which the boat is to be used.

Popular among fishermen is the pram. This small, stubby craft is suited for small streams and sheltered ponds. Those weighing less than 100-pounds are perfectly suited for carrying on top of the auto for easy transportation to numerous lakes. The canoe is another favorite. Light in weight, drawing little water, it is ideal for shallow streams and easily transported on a small trailer or on the auto top. Originally made of canvas stretched over cedar framing, stainless steel, and aluminum models are now available, adequately built to safely accommodate small motors.

More suited for larger rivers and lakes, the choices of thousands of anglers are the rowboat, skiffs, and lightweight motorboats. Made with pointed bows and square transoms, reinforced to handle outboards from two to seven H.P. they are available in flat, semi-V and rounded bottoms. The flat bottom skiff is most popular of all, found commonly on all lakes and streams. It is a craft of simple construction, one readily built without much difficulty by the home craftsmen.

Heavy duty outboard motorboats are built along the same lines as the above group. Built of marine plywood, aluminum, stainless steel, plastic and fibre glass, they are suited for operating with motors of 10 H.P. or more on larger rivers and lakes. There are also still larger boats. The inboard and newer outboard cruisers equipped with galleys, sleeping quarters and lounging

decks, are intended for such waterways as the Chesapeake, Lake Erie and coastal regions.

Certainly water sports have flourished in this state. With its many scenic waterways and excellent fishing grounds, more and more boats are afloat each year. Fishing and boating go hand in hand. Anglers should give serious thought to the advantages of owning a boat. Whether fishing or taking the family for a pleasurable afternoon of cruising waterways, there are new adventures in store for prospective boat owners. Numerous models are shown here to give an inside picture of the many designs available today.

BUILDING FROM A BOAT KIT

(From page 18)

to start fires on cold mornings.

The most important step, between desire and actually defying the law of gravity by gliding safely over the deep in a craft made by hand, is in selection of the boat you want to build. What you want the boat to do for you generally determines what type of boat you will want to own.

Those who come upon these lines are most likely to have fishing foremost in mind. But, even fishing is today so specialized that you will want to think long and seriously before selecting the type of boat you will need and want.

Here are some of the questions you will want to ask yourself.

How many people will I want my boat to carry? Will my 3-horse outboard push it fast enough, or will I have the additional expense of buying a larger motor? Should I install a live-fish box? Do I want to invest in a trailer or do I want a car-top boat? Will my boat take me back into the shallows? Do I want to sacrifice stability for speed? Will my wife and kids be able to row the thing quietly and straight enough while I am fishing?

Once you have made your decision, don't hesitate . . . if you have the money.

Although you can whip together your own design or attempt to follow a pattern someone found in a magazine back in 1922, your safest, and

very likely the most economical procedure, is to choose one of the boat kits currently on the market. The companies in the boat-building business have saved you countless headaches and expense by providing kits that you can readily knock together with a minimum of experience.

As to price range, you can pick yourself a little pram at much less than \$50, or you can expend much more than \$1,000 on a cabin cruiser. You can buy your boat kit in the rough, painted or completely assembled and ready for the water. Naturally, you pay according to the amount of labor required in advance. But, as a hint to what you can save by doing the work yourself, at least one company doubles the price to assemble the boat for you.

Of course, the fun of it is in the building of it. As one company, the "U-Mak-It Products," puts it: "We know you have no experience in boat building or carpentry. We took this fully into consideration when designing our boat kits and preparing the simple step-by-step directions. Our assembly kits are not made for professional boat builders, but for Mary and Joe . . . or anybody."

Similar thinking is followed by most of the boat-kit companies in preparing plans and parts for the boat they think you might want to build. All parts are clearly marked and easily identified to correspond with directions.

Glues and screws are the two materials that will hold your boat intact once it is finished. Inside you will likely find a quantity of sturdy white oak, providing rigidity, and outside a smooth surface of durable, light plywood.

But, unless you are an old boatman, familiarity ceases until you begin actual construction. By the time you are finished, you will have acquired a nautical vocabulary that will place you on speaking terms with the "old salts." And each joint, support, angle and screw will take on new significance every time you take your boat to water. Because it will be something you made.

Without a specific boat in mind, we can't begin to tell you what to do after you receive your boat kit. However, there are certain generalized instructions that apply to the building of any boat suitable for inland and off-shore ocean navigation.

First, and more important than you might think, is selection of a place to

build the boat. Despite the many cartoons and jokes on the subject, boat builders not infrequently get their craft together only to find that it is larger at its smallest diameter than the largest exit available. Either they must disassemble the boat or start tearing part of the building away.

Since cellars are often used as workshops, especially during the winter, make certain that the biggest door is large enough to accommodate passage of the completed boat.

Assembly jig may be placed directly on any level surface, on boxes or on "horses." In many cases, the crate in which the boat parts are shipped will act as an assembly jig.

The next step is to forget everything that your friends have told you about building a boat. Take out the instruction sheet and study it religiously; then follow it. Don't be confused by such terms as keelson, batten, chime, transom, sheer, cant strip, stem trim, etc. You will find these parts on practically any old rowboat you have ever used. And, they will be properly identified on your instruction sheet with diagrams to match.

Tools necessary for the construction of a boat from a kit are found in most households. You will find that each boat part is notched to fit and usually needs only the application of a screw driver. Some companies even furnish the screw driver.

Don't be misled by the seemingly flimsy plywood that protects the outside of the boat. Plywood is the strongest material per unit of weight known to engineering science. One-quarter inch marine panels equal the strength and protection of one-half inch of conventional planking.

Don't under any circumstance attempt to change the design of your prefabricated boat. Any changes are apt to reduce the efficiency of the finished product and make for naught all the engineering experience and testing of the company that provided your boat kit.

Although it is possible to buy your boat kit with paint already applied, this is one operation that the average person regards as a more personal matter. And, again, you can save money by doing it yourself. Just be sure that you purchase a good marine finish, preferably one recommended by the boat company, and then dress her up to suit your own fancy.

Naturally, your boat company will furnish a decal to identify the boat as one of their own prefabrication, and they will be mildly insulted if you don't use it. But, the official name of the boat is your own choice.

Here is your chance to sweeten the wife who has put up with your late hour banging and wrestling in the cellar. If she carries a handle like "Esperanza," "Gwendolyn," "Wilhel-



"I once took a thorn out of his paw."

mina" or "Sophronia," you may have to shorten it a bit or hire a professional artist, but it may be worth it in the long run. Anyway, when you're alone and things don't go right, you can call it anything.

Means of propulsion is a matter of choice, but all modern boats are constructed to mount an outboard or inboard motor. Machinery being what it is, however, a good set of oars is a must . . . especially for the angler.

Except for one or both of these extras, you needn't buy another thing. However, as in the case of the automobiles we buy, you can go hog wild to dress up your boat to match or beat the one at the next dock. But, before you give serious consideration to additional extras, better paint your wife's middle name on there, too.

Then, all things being equal, you have your choice of: a couple cleats, a bow plate, mooring bit, bow chocks, safety chains, towing ring, lifting handle, bow handle, stern handle, drip pan (for outboard motors), stern flag-pole light, windshield brackets, plexiglass windshield kit, bow light, throttle control, a couple kapok cushions, etc.

Without the etc., the above will cost you approximately \$79.50.

If you feel real reckless, you might consider a water speed indicator at \$9. This is the point at which the wife is suddenly reminded of a "lovely fur coat at Minskiwich's for only \$899."

Taking another serious slant at the boat picture, we must recognize that there are today many opportunities to acquire a really fine craft at a reasonable figure by utilizing our own spare time and effort. In addition to the pride of craftsmanship, pride of ownership and the attendant joys connected with boating, is the knowledge that we no longer need depend upon leaky, dangerous and too often high priced rentals.

Building your own boat can be fun . . . and an economical accomplishment.

FISHING FROM A BOAT

(From page 20)

the fish bite or not. Line always has the tendency of moving in a follow-up of blowing wind. If you have occasion to be in a situation where you

have only one anchor perhaps your fishing will be much more effective if you beach the boat at favorite spots such as islands, or inaccessible shorelines. For in fishing a lake or even a stream of any depth most of the best fishing is still found to be near undercut shores, in or near shore weed clumps, or masses of cattail, and on streams often near strong shore eddies. In their feeding most fish travel in low water for the minnows that may be found there, the insect life, the stray frogs, crustacea, or even mice that often present tempting morsels to the larger fish, especially of the game variety.

It has been my experience that almost without fail the greatest amount of fish can be caught within a short distance of the land, whether the fish are pan, coarse, or game. One might then ask, "Why fish from a boat at all?" For the reason that fish move in their feeding periods and travel in schools or as stray lunkers often in areas of water inaccessible to the shore wader. Besides, it is so much easier to get back to your place of origin by using a motor or even oars.

Anchor lines should be considerably longer than the greatest depth of the water, for in many places the lines may need to be changed or adjusted and some freedom is needed for adjustment. Anchors should be dropped close to the boat and the lines made quite tight for even a slight bit of leeway creates quite an amount of drift for the bait fisherman. Often enough, too, the anchor drifts free of a sandbar or the like and into deeper water. In such cases, where the anchor is suspended in midwater it is little better than no anchor at all. Anchors can easily be made from cans filled with cement, the most effective being of the large juice can type. Anchors should not protrude jagged edges for these very easily can be snagged or lost.

Rarely should more fishermen than two fish a boat unless it is of adequate size. For not only do conditions become cramped otherwise, but the possibility for incidence of accidents becomes greater. If the fishermen be plugging, look out man, if you happen to be the one in the center, for you'll be ducking jagged hooks of someone's favorite bass killer from either side for most of the morning or evening.

Boat fishing may be of various types. The still fisherman can anchor the two anchors and try various spots with one or two rods and lines. The effectiveness of two lines becomes apparent when

more than one bait may be on hand to determine what the fish may be taking. In addition the fisherman may use methods to determine depth at which fish are hitting by using a floater with one line and fishing on the bottom with the other. Fishermen often also like to fish worms for panfish or some of the coarser fishes putting in pleasant time while the other rod like the proverbial bear trap is set for something much more enticing in the offing. When the bigger critter swallows the "big bait," presto, the proverbial bear! The fun that follows may include a half hour of fascinating fight before the fish is subdued.

The drift fisherman changes the tempo of still fishing to some extent. If on a lake, he motors or rows to the end from which the wind is blowing, sets his boat broadside to the wind and then throws a baited line for gamefish over the windward side. This line should have some split shot or other sinker as drifting has the tendency to keep line near the surface of the waters which is not always the place where fish feed. Lines should often be used similarly in trolling. The boat drifts and the minnow, crawdad, frog, or be what it may, moves with the drifting craft. Most fishermen know that a game fish is partial to a moving bait and drift fishing is done not only to excite the pugnacious fish more readily, but to cover a greater span of fishable waters. In streams, such fishing is more difficult because of snagging boulders which interrupt the fishing with definite hazards to line.

Occasionally, even in drift fishing, the fish fools the fisherman—it gets under the boat and drifts along with it. I can readily remember a day when a friend of mine caught one of the largest fish he ever landed in this manner. Dropping his minnow into the water at the boat's edge, he spooled out line to make a further throw. Line took off with tantalizing speed to the realization that a sizeable fish had struck. The greatest battle of the day then took place under the boat when he yanked. With us anxiously trying to figure out just what was happening a gasping bass was laboriously brought in. Try it sometime yourself. There might be one lurking under your boat, too. I remember another occasion when a bass which seemed the size of a sway back horse ogled a plug of mine riding laterally under the boat. Try as I might I couldn't entice him. He was perfectly content to remain only in the comforting confines of the shade of the

drifting boat, letting all else craftily well enough alone.

The plug fisherman, flycaster, or spinning fisherman needs to worry very little about the use of an anchor. His type of fishing is going to be of the patrolling type. Primarily he should first survey the wind direction to determine where he's going to fish, especially if he is on a lake, it is large, and the wind be such that if he get at a particular spot of his choice the conditions be too adverse for effective casting.

Effective casting in a boat may be done in a number of ways. In the one type a few strokes of the oars near the shoreline are alternated with similar numbers of casts into the cattails or to the edge of a shore weed bed and are generally productive during the coarse of the day's fishing. Do not fool yourself; some of the largest bass will be in water barely deep enough to hold them. Often the weedless bait in the form of a Johnson silver minnow with a porkrind or a preferred weedless surface bait during the evening are tempting artificials. Similarly, bass bugs used with fly rods, especially on hot evenings may elicit action where no one would believe that fish existed. Even dropping the plug on the shore, then pulling it into the water with a "ker plunk" will often make bass think that frogs are a'plopping, go wild. Panfishing practically always is a pleasant adventure effected in the shore fishing manner.

The plug caster can also drift. The disadvantage of this is that one never knows what portion of a lake he will cover as wind is no respecter of your idea of desired direction. On streams one can drift with the current, then motor back to the place of origin.

A boat is primarily used to get us from a particular starting place in our fishing to a desired objective, and safely back. Let's remember the latter point and observe those rules which will tend to give us more days of pleasant fishing for a long time to come. For as in anything else the greatest pleasure comes with our ability to make good use of the things at our disposal which were made to benefit us in the wise use of our leisure time.

**IF YOU WOULD
CATCH MORE TROUT
KILL LESS!**

THE RIGHT FLY LINE

(From page 13)

even better than those of a scant six years ago when many fishermen thought that we had just about reached the peak of perfection. Compared to those highly touted twisted horsehair casting lines so prevalent in England a couple of centuries ago, they are out of this world.

However, those old timers who by necessity were compelled to make their own lines should not be dismissed so summarily. The process entailed much work and patience and no little skill and know-how. Preparatory to the actual making of the line they had to spend much time in collecting the raw materials; going about seeking out horses with tails or rather the hairs in them, conforming to specifications.

The hair had to be round and unblemished and one that had never been kinked. The nearest approach to transparency was hair that was "glass-colored," obviously, a kind of gray. Black hair was usually round and of an even diameter throughout its usable length. White was just the opposite, being uneven and flat and prone to gray. Come to think of it I don't recall of ever seeing a white horse hair sofa.

After the selected hairs were carefully washed in a bland soap and thoroughly rinsed, the most uniform in diameter as well as the clearest were picked out for the actual twisting. The twisted links that were later joined together were then soaked in water for fifteen or twenty minutes and twisted again. In this way hairs that shrunk too much or not enough could be discarded. When several hairs were used in the links their uniformity was of the utmost importance. A light colored or "clear" seven-hair line always had a black hair incorporated in its center.

The links were finally dyed in a mixture of strong ale, soot, juice from walnut leaves or bark, and alum; the whole brewed together until well incorporated. The hair was soaked in the cool mixture until the desired depth of color was attained; a clear green being best, but "not too green."

If nothing more, the above goes to show how lucky we are.

For those who like a bit of the

professional touch combined with practical principles, there's a torpedo type line that has it. It's a so-called quick taper job which comes in appropriate sizes. For the rod weights previously designated an HCG would be about right. With a bass rod weight torpedo line made of braided nylon given to him by Jack Knight, and I might add that the line was made to Mr. Knight's specifications, I saw Chalky Bauder, well-known Williamsport taxidermist and sportsman, drop a hair frog phenomenal distances with an accuracy which was positively uncanny. It is well to remember that in the selection of a fly line, weight is an essential factor because it is the line that is cast. However, the weight should not be so great as to throw your outfit off balance.

Color? There is no doubt but what many fishermen prefer colors which effectively camouflage their lines. Personally, I'll take a line which can be seen so that the position of the fly can be readily ascertained. This is particularly handy when using a superfine leader with correspondingly minute flies. I'll settle for a yellow or equally conspicuous color. It is more than likely that some day we may get a superior fly line with a transparency which will defy detection and thereby dispensing with leaders. As for me, I do like to fuss with leaders, and preparing them for the day's sport is all a part of a pleasant task.

The new lines made of braided nylon can do practically everything expected of their silk counterparts. They have a super-smoothness, plenty of weight and great flexibility at ordinary temperatures. In addition, since nylon is water resistant, the lines require no greasing as well as a minimum of care. However, it must be noted that in icy water nylon loses some of its suppleness.

After purchasing, let's say, a tapered line of a size suited to your particular rod, examine it to determine the length of level line which most manufacturers append to the taper. Some lines have as much as eight or even ten feet of level line at the end of the taper, although it may range all the way down to as little as three feet. You can readily determine how much there is by running your thumb and forefinger down toward the end of the line.

If you find there is only five or six feet, mount the reel holding the line on the rod which you intend using with it and get out where there's enough

room to cast. Your lawn or a field or an empty lot will do if there is no water handy.

First, try the line with two or three leaders of varying lengths together, of course, with appropriate lures. If you find that it works unsatisfactorily with all of the leaders, repeat the test after cutting ten or twelve inches off the level section. Check to make certain it is the line that is at fault before you do too much cutting. In many cases it will be found that a foot or so of level line at the end of the taper facilitates casting. So, take it easy when approaching the end of the level length.

The things to look for are, 1) that you can throw a satisfactory amount of line with a minimum of effort, 2) that the line glides effortlessly through the guides. 3) that the leader falls to the water in a straight position, with the fly or lure dropping naturally to the surface. To accomplish the latter the leader must be free of swirls and kinks, and must alight without excessive bellying. In other words, it must be reasonably straight. If it isn't you may fail to hook a fish which strikes at the instant the fly hits the water.

Try to conduct your tests when a slight wind is blowing so that you can determine the line's behavior when thrown into it. A line properly mated to the rod should slip into the wind with but a little additional effort on your part.

In general, for the fairly stiff fly rod of from 4½ to 6 ounces use nothing smaller than a D level or an HDH tapered line. These same sizes are suitable for rods with a medium bass action.

An HEH tapered or an E level for rods from 3 to 5½ ounces are about right.

For heavy bass rods size C level or an HCH tapered should do the trick.

In conclusion, the correct matches for your rods should be fitted definitely by the method outlined. For the best results always test any line. Even the most expensive.

TIPS ON MONOFILAMENT

(From page 11)

5 lbs. test (P). I mention this brand specifically because I know of no other which is available in such a wide range

of sizes. The dispenser spools come in round transparent boxes (as shown in the illustration) ingeniously contrived so the monofilament can be pulled out and so that the excess can be reeled back in. This solves the leader tippet problem once and for all. These spools are no bigger than a half dollar and take up negligible room in the fishing jacket.

The four knots shown are all that an angler needs to know to use monofilament properly in spinning or in fly fishing. The "Perfection Loop" knot is for the loop at the leader's head, and the "Barrel" Knot ties on the graduated strands or tippets. These two knots solve the leader problem, and nylon monofilament solves the expense and nuisance formerly inflicted upon us by Spanish gut.

In spinning, the "Improved Clinch" knot is excellent for tying all ringed-eye lures (or swivels) to the line. The "Turle" knot only is used for turned-up or turned-down eye lures, such as flies. Broken lines can be spliced with the "Barrel" knot, a long end being left as a dropper, if desired. This splice is approximately as strong as the line itself, and gives no trouble in casting. The best tool I know of for trimming the ends, or for cutting monofilament is a pair of folding nail clippers. Other anglers may have other preferences in knots, but these four have served my purposes extremely well.

Lastly, let's not underestimate the amazing strength of the nylon monofilaments made especially for spinning, such as "Tortue." I have taken sailfish with it in eight pound test, and in three pound test it should be more than a match for any of the biggest trout in Pennsylvania. If you don't believe it, just get "hung up" in mid-stream and see how strong this monofilament is when you have to break loose!

WELL - WHAT'S NEXT

(From page 12)

plug a mile . . . but as soon as a real fisherman got the line *wet* it was like having a thousand guides instead of three or four. With several hundred times the normal guide-drag the plug just wouldn't go anywhere. My then editor-in-chief sent me one to test and comment upon in my fishing depart-

ment. I panned it and was then advised there was advertising money in the offing and to try to find something good to say. My revised copy (which surprisingly enough got into print) said in essence that the Blank Co. had put a new *trolling* rod on the market. It was beautiful and sturdy. No guides to step on or break off or for the line to catch around. The line ran through the middle of a hollow tube . . . and that in a *pinch* it could be used for casting.

Fire-lure was the last big splurge. You walked into a tackle store and saw the bodies of your favorite patterns glowing with colored fire. They looked wonderful. That is, they looked wonderful to a fisherman. In three seasons of public use they have been a disappointment. A store dealer could display them under a fluorescent light but when we fished with them we couldn't arrange for a small angel to fly just above them holding a fluorescent flashlight. In normal light they were a shade brighter than ordinary flies but the stuff was not a quarter as light reflecting as tinsel and by no means as great a step forward in fly making materials. As with the nite-luminous plug the fish apparently have no overpowering yearning to eat light-nig bugs and they still stick to their diet of ordinary insects, and the flies that more or less match them.

In the present period of relative calm when no new lure or substance is bidding fair to force an angler to hide behind trees while affixing it to his line lest he catch a limit of small fish before he can cast it to the part of the pool where the biggest fish lie, we may well gather our strength and wits to resist the next onslaught. Your guess is as good as mine as to what it will be but the odds are 100 to one it will be another dud.

The nicest thing about fishing is that the stuff that makes for success doesn't come out of a box or bottle . . . to be good at the sport you have to be either plenty lucky or plenty smart!

WHAT'S NEW IN FISHING BOOKS

By HUGH JOHNSON

When I started to read *Gone Fishin* by Charles Elliott (The Stackpole Company, Harrisburg, Pa., \$5.00), it was with a grumbling expectancy that here was another one of those collections

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of rambling, egocentric, corn-filled fishing reminiscences that are constantly popping out at us from publishers' lists, only to die a quick and merciful death simply because readers are sick and tired of the stuff. However, *Gone Fishin* turned out to be a thoroughly pleasant surprise, chiefly because Elliott writes vigorously and with contagious honesty about man, nature and fishing without puffing up his own angling muscles until they crackle, and he writes with true feeling without a single note of sentimentality.

There are eighteen chapters in this book, and while each of them is a separate story or discussion, they are still all-of-a-piece, threaded together by the author's love for the woods and waters and the wild creatures who live in them, and by his own conviction that there are no treasures so rich and life-giving as those afforded by a full and knowledgeable contact with Nature. For humor, there is the story of the giant "mad" trout allegedly afflicted with rabies from the bite of a dog, that drove old Pate to give up fishing. For excitement, a story to make your flesh crawl and one that sets a new standard for life-or-death experiences, is the one about how Elliott and a friend barely made their way on foot out of the snake-infested Okefenokee swamp after an alligator had smashed their canoe to pieces.

The book bristles with excellent fish-action narrative, my favorite being the battle Elliott had with a mammoth tackle-bustin bass in a big 'gator hole in the Okefenokee, an experience climaxed by the loss of the bass and the sudden catapulting of Elliott into the mucky ooze of the swamp. The stories contained in *Gone Fishin* cover a wide geographical range, but the most fascinating are those set in the fabulous Okefenokee.

Ordinarily, the discursive type of book—running heavy on an author's account of his own experiences—is not my particular dish, but *Gone Fishin* is the real McCoy, a book that is so good and so human that one wants to read parts of it again and again. It's outdoor writing at its best and I wouldn't have missed it for the world.

* * * *

A new series of little books has quietly come upon the scene, and they deserve more attention than they have been getting. They are designed to convey to young people, in interesting story form, basic information about wild life. Each book is about fifty

pages long, fully illustrated in color, and the cost is only 50c each. The series, written by R. W. Eschmeyer and called True-to-Life Stories, contain the following titles: *Bob White*, *Charley Cottontail*, *Billy Bass*, *Bobby Bluegill*, and *Tommy Trout*. Each book provides the essential facts about the habits, life-cycle, characteristics, and the struggle for survival, of the animal or bird or fish which happens to be the "hero" of the particular volume, and—an excellent feature of each book—the relationship of one wild creature with all the others with whom he has contact is very carefully developed. Children, particularly those whose parents or older brothers are fishermen or hunters, are full of questions about where rabbits live, how a bird comes out of the egg, whether a fish has ears, how a fish feels with a hook in his lip. These little books perform a real service in answering such questions for boys and girls and, at the same time, tell an engrossing story. Don't let the too-cute alliterative titles scare you off. The books are *much* better than their titles! They are published by the Fisherman Press, Oxford, Ohio and can be purchased directly from that firm if your bookstore does not carry them.



The Fly Book

By A. G. Shimmel

The Iron Blue Dun

Few if any anglers will dispute the fact that blue-gray is among the most useful, if not the most useful color used in the construction of flies for trout. This is particularly true in our hard fished eastern waters.

The physicist tells us gray is composed of equal parts of the primary colors and has the power to absorb and subdue other colors and thus bring them into harmony. It is common in nature being found in the under fur of many animals, the flight feathers of many birds and the coloration of many aquatic insects. The rarest occurrence is where the angler craftsman needs it

most, in the hackle feathers of the gamecock. Natural blue gray capes are rare and are treasured accordingly. They are a necessity if we wish natural color in our imitations. Is it any wonder they are expensive?

Among the gray wet flies that have produced season after season, one of the oldest and best is the Iron Blue Dun. There are three patterns and a variety of sizes, all of them useful. The oldest pattern served as a lure in the Irish lakes in the time of Izaak Walton and won a place of affection beside the amber thirst-quencher and the shillelah in the hearts of the anglers of Erin.

The Irish Iron Blue Dun was a wet fly having wings of darkest coot, body of dark gray moles fur spun on yellow tying silk and ribbed with fine silver wire. The tail was three or four scarlet fibers of silver pheasant crest, the hackle of softest blue dun to match the wings and body in color.

The pattern in England had a hackle and tail of rusty-red, the mole's fur body spun on red tying silk and a wing of black bird or darkest starling.

The American version has a mole's fur body, a woodcock wing, a dark blue dun hackle and tail. The tail is tied extra long. At times we rib it with silver wire to increase its visibility in dark or discolored water. Generally we like the solid gray pattern.

Many fly hatches have this blue gray coloration and for this reason the Iron Blue is a most effective pattern throughout the season. This is particularly true on limestone streams where brown trout have been established. A long fine leader and a number eighteen Iron Blue will often take a regular riser that has refused a dry fly. Some patterns are more effective at certain times during the season. When a hatch of Quill Gordon or Hendrickson are on and an occasional trout refuses them a switch to an Iron Blue as a second fly is sometimes effective. As an all around wet when the gray hatches are on the Iron Blue has the nod.

Its lack of popularity with anglers is hard to understand. One can only surmise that its mouse gray color is much more attractive to fish than fishermen.

KILL LESS —
CATCH MORE!

The Editor's Angle

BOILED TROUT!

Today I went to French Creek to help (?) stock some trout, 2,000 browns and rainbows. Herb Andress, one of our stalwart members, was there, too. Several other clubs were represented, Spring City and Kimberton that I know of. The trout were nice, with some big ones thrown in. Several would go to 16 inches.

Stocking was proceeding according to plan, when we came on a disagreeable sight: a beautiful setting near a bridge and what was dumped right there? A load of trash! Kimberton Club is going to write to an address found on several magazines in the pile.

Trout were stocked at the next stop. While waiting for cans to be returned to the truck, the driver decided to refill the gas tank for the pump motor that circulates air to the trout. This motor, amidships on the tank had been running steadily. It was windy. Sud-

denly the whole motor began to shoot flames after it was started.

No one had a fire extinguisher, not even the adjacent farm. One of our gang who ran to the farm saw the flames shooting up over the hill and called the Kimberton Fire Company.

Meantime, it looked for a while as though we were going to have boiled trout! The boys used water from one of the tanks that had been emptied of trout. Every time a bucket of water went on the motor, flames burst out the other side. Some fun!

Just before the firemen arrived, the fire decided to cool off. It was about out when the Kimberton Fire lads pulled up. The tanks of the truck were scorched, the paint peeled off. One tire threatened to burn but was kept from being badly damaged.

Fish Warden Horace Pyle decided the heat was not what trout liked, so he ordered the fish released immediately. That one spot got several hun-

dred. The creek is really loaded there. Kimberton Fire Company says that's the first time they were called out to keep trout from cooking!—Clara Franz, Secretary—West Chester Fish and Game Assoc. Inc. in *Sporting News*.

Dear Editor:

I have been a subscriber to THE PENNSYLVANIA ANGLER for many years. I also subscribe to many other magazines, club and otherwise. This month's (April 1953) is one of the best informative and pertinent issues for the opening of the 1953 trout season. I have noticed a decided revitalized accent in the ANGLER during the past year.

ALFRED C. ROSS

New York N. Y.

Dear Editor:

I have a bone to pick with a fellow by the name of Bill Wolf who wrote an article appearing in the April ANGLER.

On page 23 of the April issue he states in his article entitled "Some Trout I Have Met" that brook trout are not especially brilliant . . . because of the fact they were fished out early in American fishing history.

Please let me set Mr. Wolf straight . . . the truth is . . . the fact is . . . man and man alone is responsible for the decline of the brook trout. Why? Well, because of carelessness and utter disregard of conservation methods and practices.

Brook trout require cool and aerated water with ideal temperatures. When man, in his haste, cleared all the land for agriculture in the early days he cut down everything in sight. The many cold streams and ponds were deprived of shade and became warm and unsuitable for the brookie.

So please, Mr. Wolf . . . don't blame the brookie or call him stupid . . . Put the blame where it belongs . . . on inconsiderate MAN.

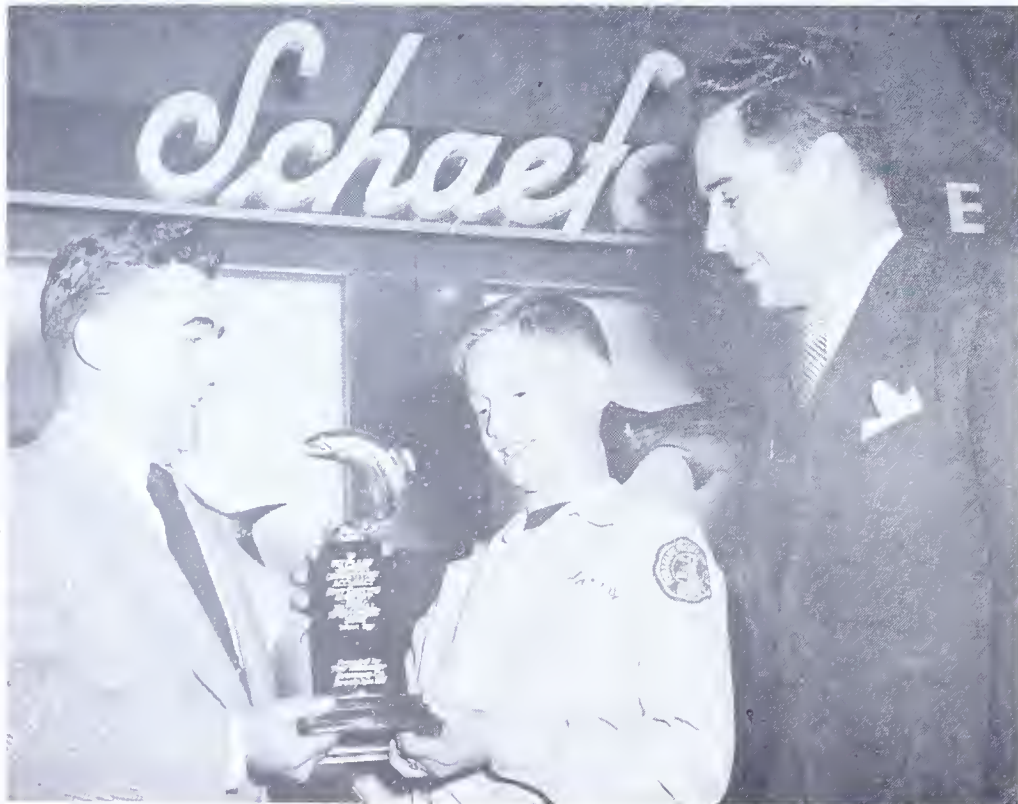
W. F. TRUX

Easton, Pa.

President Erle E. Ehly, Tedyuscung Sportsmen's Association, writing in the "President's column" of *The Tomahawk*, states: "It was most inspiring this year to see the number of fishermen of high-school age and younger, who opened the season along our Wissahickon Creek on April 15th. I have always felt that the special city regulations along the Wissahickon only served to restrict the stream from those who needed it most—the youth of our community . . . the Wissahickon is now regulated by the state, as it should have been before. A better program of enforcement can now be expected as well as a better stocking program in keeping with the Fish Commission policy, to heavily stock our streams."

PENNSYLVANIA ANGLER

Photo by Edward Ozern



WINS CASTING HONORS AT NEW YORK SHOW. Harry Ford, Jr., 13-year-old son of Mr. and Mrs. Elwood Ford, 556 S. Clewell Street, Fountain Hill Pa., is shown receiving trophy he won in junior accuracy test for second straight year at New York Sportsmen's Show recently. He posted 98 out of a possible 100 points and outclassed 15 other junior entrants, closest rival scored 89 points. The elder Ford, Joseph Horvath and Dan Momith of the Hellertown Sportsmen's Club teamed up to win for the Hellertown Club with 287 out of a possible 300.

Dear Sir:

Just a note to inform you I welcome the opportunity to renew my subscription to *THE PENNSYLVANIA ANGLER*.

I have often wondered how you could print a magazine such as *THE ANGLER* for the old rate of 50 cents per year and I would like to go on record here and now by stating whether *THE ANGLER* was one dollar a year or one dollar a copy I would still buy it . . . for my money it's the best of its kind at any cost.

There's just one fault I have with *THE ANGLER* and that is each month when it arrives my seven year old son Chipper gets hold of it, then my wife, then my mother, and . . . well, if and when they have finished with it I am permitted a quick glance at the pages.

C. A. CAPELLA

Bristol, Pa.

Dear Sir:

Enclosed is \$1.00 for my year's subscription to the best fishing magazine on the market, *THE PENNSYLVANIA ANGLER*.

I have been thrilled while reading it in our High School library and want it for myself. I cannot see how you can possibly sell such a wonderful magazine for so low a price. If possible start with the April issue. I would like to thank the Commission for the large amounts of trout stocked this year. I know it will give all fishermen much greater enjoyment in their sport. Keep up the swell work!

VAN ADAMS

Philadelphia, Pa.

Dear Sir:

I am a newcomer to *THE PENNSYLVANIA ANGLER* subscribers, got my second copy and well pleased. Keep up the good work. Sock the trout hogs a little harder. I would certainly like to pat you on the back if I could reach that far. How's about some recipes on scrub fish.

W. E. BOEHMER

Hunlocks Creek, Pa.

S . . . O . . . S! to Clean Fishermen!

Fortunately, most of our fishermen are clean fishermen and would not think of strewing cans, bottles, boxes, papers and other debris along Pennsylvania's streams. However, there are among us some fishermen who are not clean and who make it tough going for the others of us in our favorite sport in God's great out-of-doors. It is to the army of clean fishermen, therefore, that sportsmen, land owners, fish wardens and others at this time direct an urgent appeal to do all in their power to discourage that small percentage of thoughtless people during the current fishing season. Discourage their thoughtless habits, we are strongly urged; and encourage them to protect the places they frequent—for future enjoyment of themselves, as well as others of their fellow men!—Ellen A. Dietrich, Secretary, in *Southeastern Sportsmen*.

No sportsman gets very far in his reasoning until he realizes that wildlife doesn't thrive in abundance where the soil has eroded. He learns that fish cannot grow in polluted waters or a



EPITAPH TO A FISH

Tombstone Memorial at Blockley, Gloucestershire, England, stands near a picturesque part of an old trout stream. Appropriately named, "Fish Cottage" the home of Mrs. Dalriddle, who carefully tends the grave, last resting place of the old fish near the trout stream that runs through her garden, the site is of interest to curious Anglers and others visiting the spot.—R. D. Barrett-Lennard.

silted stream, that big game cannot be found in a burned over forest. He learns that wildlife problems are land use problems. He learns that man cannot live in health and prosperity unless the soil is rich, the forest green, and the waters pure. So, you find the sportsmen preaching soil conservation, forest fire prevention and pollution control.—From Snap Shots by Jay Howard in *Sportscaster*, The Perkiomen Valley Sportsmen's Association.

CHANGING ADDRESSES??

Send immediately
Both Old and New
addresses to

Penna. Fish Commission,
Harrisburg, Penna.



Russell A. Heycock, Lemoyne, Pa., landed this 27-inch, 6½-lb rainbow trout on a worm while fishing the Yellow Breeches, Cumberland County, on April 22, 1953.



Why Be Another Drowning Statistic.

OBSERVE AND PRACTICE SIMPLE BOATING SAFETY REGULATIONS
THE LIFE YOU SAVE MAY BE YOUR OWN!



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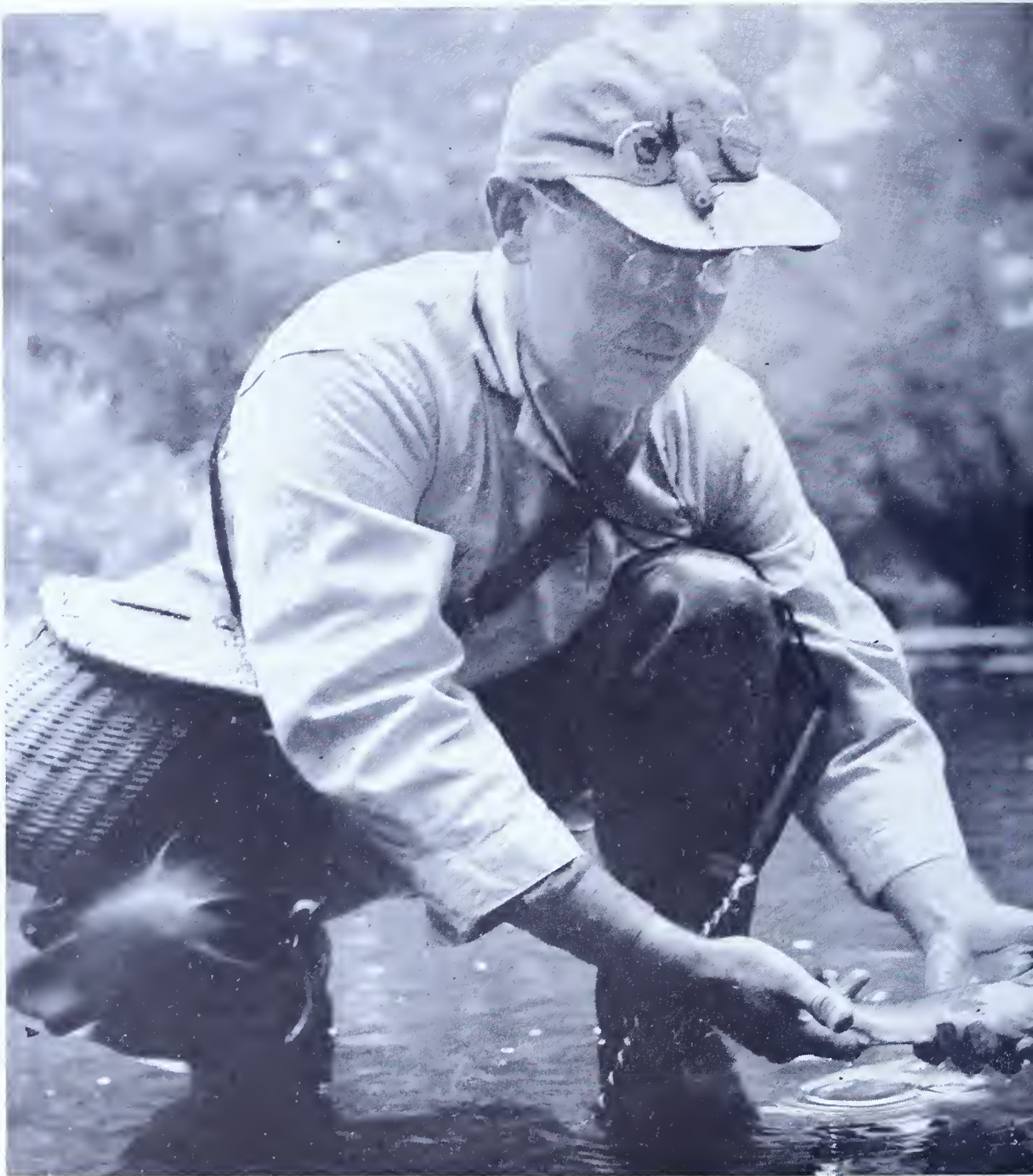
JULY

PENNSYLVANIA ANGLER

1953

PLUG MAKING ■ SPIN FISHING FOR BASS ■ BAITS FOR BASS

HELLGRAMMITE HIGH JINKS ■ PORK CHUNK ■ TYING BASS BUGS



PLEASE! . . . Mr. Angler . . . if you want better bass fishing . . . release that undersized fish the right way. Wet your hands, handle gently, snip snell or leader to hook cleanly close to the mouth, then launch him . . . don't THROW him back! Give that bass a 50-50 chance to grow up!

Lose a Hook—Spare a Bass!

**COMMONWEALTH OF
PENNSYLVANIA**

HON. JOHN S. FINE
GOVERNOR

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PENNSYLVANIA ANGLER

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JULY, 1953

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THE COVER . . . here's that rip
snortin' bronzeback back again!

BACK COVER—A Forrest-Cypher conserva-
tion cartoon.



George W. Forrest, Editor

1339 East Philadelphia Street, York, Pa.

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GREETING AT TOTTENHAM HIGH CROSS. (Drawn by T. Stothard, R. A., and engraved by Fox.)

"You are well overtaken, Gentlemen, a good morning to you both." The SWAN is opposite Tottenham High Cross.

IT WILL BE remembered how, in the opening scenes of *"The Compleat Angler,"* 'Piscator' cries out to his friends, 'Venator' and 'Auceps,' who are on their way to Hoddesdon, "You are well overtaken gentlemen. A good morning to you. I have stretched my legs up Tottenham Hill to overtake you, hoping your business may occasion you towards Ware," and how 'Auceps,' in reply, agrees to bear them company as far as *"Theobalds"* in Cheshunt.

In fact, the long street at Tottenham, now part of Greater London, is the direct road not only to *"Theobalds"* but to Enfield and Edmonton, and so on to Ware and Hatfield.

On reaching Tottenham Cross, 'Piscator' observes to his companions, 'Venator' and the 'Scholar':

"And pray let us now rest ourselves in this sweet shady arbour, which nature herself has woven with her own fine fingers; it is such a contexture of woodbines, sweet-briars, jessamine, and myrtle, and so interwoven as will secure us both from the sun's violent heat and from the approaching shower. And being sat down, I will require a part of your courtesies with a bottle of sack, milk, oranges and sugar, which, all put together, make a drink like nectar—indeed, too good for anybody but us anglers. And so, master, here is a full glass to you of that liquor; and when you have pledged me, I will repeat the verses I promised you."

Unfortunately the modern 'piscator' would be unable to find this picture of sweet shady arbours overgrown with wild flowers.

In 1840, a local magistrate, William Robinson, LL.D., wrote, in the enlarged edition of his *History of Tottenham* originally published in 1818:

"*'The Swan Inn'* at Tottenham High Cross was the place of resort of Izaak Walton, the angler; he used to tarry here awhile before he went to the River Lea to fish, and again on his return. In the front of this house, in 1643, there was an harbour, the favourite resting-place of Walton, of which mention is made in *'The Compleat Angler.'* . . ."

The author of *"Rambles by Rivers,"* printed in 1844, when referring to Walton and the *"Swan Inn"* says:

"What a treat it must have been to be greeted by the old man with, 'Welcome to Tottenham High Cross,' and to hear him proclaim his delight in simple rural enjoyment, in such lines as these:—

tarry and relax with

Izaak Walton and His Friends

At The Swan



"Abused (deceived) mortals did you know
Where joy, heart-ease, and comforts grow,
You'd scorn proud towers,
And seek them in these bowers;

Where winds sometimes our woods perhaps may shake,
But blustering care could never tempest make,
Nor murmurs o'er come nigh us,
Saving of fountains that glide by us."

In several of the illustrated editions of Walton's "*The Compleat Angler*" is included a view of Walton and a companion sitting in the arbour in the garden of the 'Swan' with a bowl of Venator's nectar before them.

The inn appears to have been popular with travellers in the past, and one writer says:

"It had an arbour in front, of such rural beauty, that it contributed to cheer the senses of travellers, as they sat and invigorated their bodies, with good things to be obtained at the inn."

Another writer says the "Swan" had "some ground at the side covered with turf, and was railed round. There stood a high white pole surmounted by a large white swan." This inn-sign has long been removed, and the general appearance of the 'Swan' has been modernized.

In 1610, "a singular duel occurred at Tottenham," and a record of the event was included in the parish register. No doubt Walton heard about this incident when he lingered at the establishment.

On Thursday, 8th November, several neighbours gathered at "the sign of the Swan," to "warme" or cheer John Syme, the landlord. (This may have been some form of 'house-warming'.) Two of the party, after dinner, went into a nearby field to settle a private quarrel, each using his pike-staff. One was killed, through a wound in his throat, and after the coroner's inquest, his body was buried on Saturday 10th. The entry states:

"Memorandum, that on Thursdaie, being the eight of November, there was a meeting of the neyghbours to warme Mr. John Syme, his house, the seigne of the Swanne, at High-Cross, among whom came John Nelham and John Whiston, whoe having some grudge or quarrell betwene them, diner being done, they two did use some private speches within themselves, taking leave of the companie,

(Turn to page 25)



PARTING AT TOTTENHAM (By T. Stothard, R. A. engraved by Fox). VENATOR: "... let's now rest ourselves in this sweet shady arbour, which nature herself has woven with her own fine fingers..." This scene at the SWAN, Tottenham, shows the mazer or wassail-bowl in which the punch was served and includes the top of Tottenham High Cross.

By FRANK A. KING

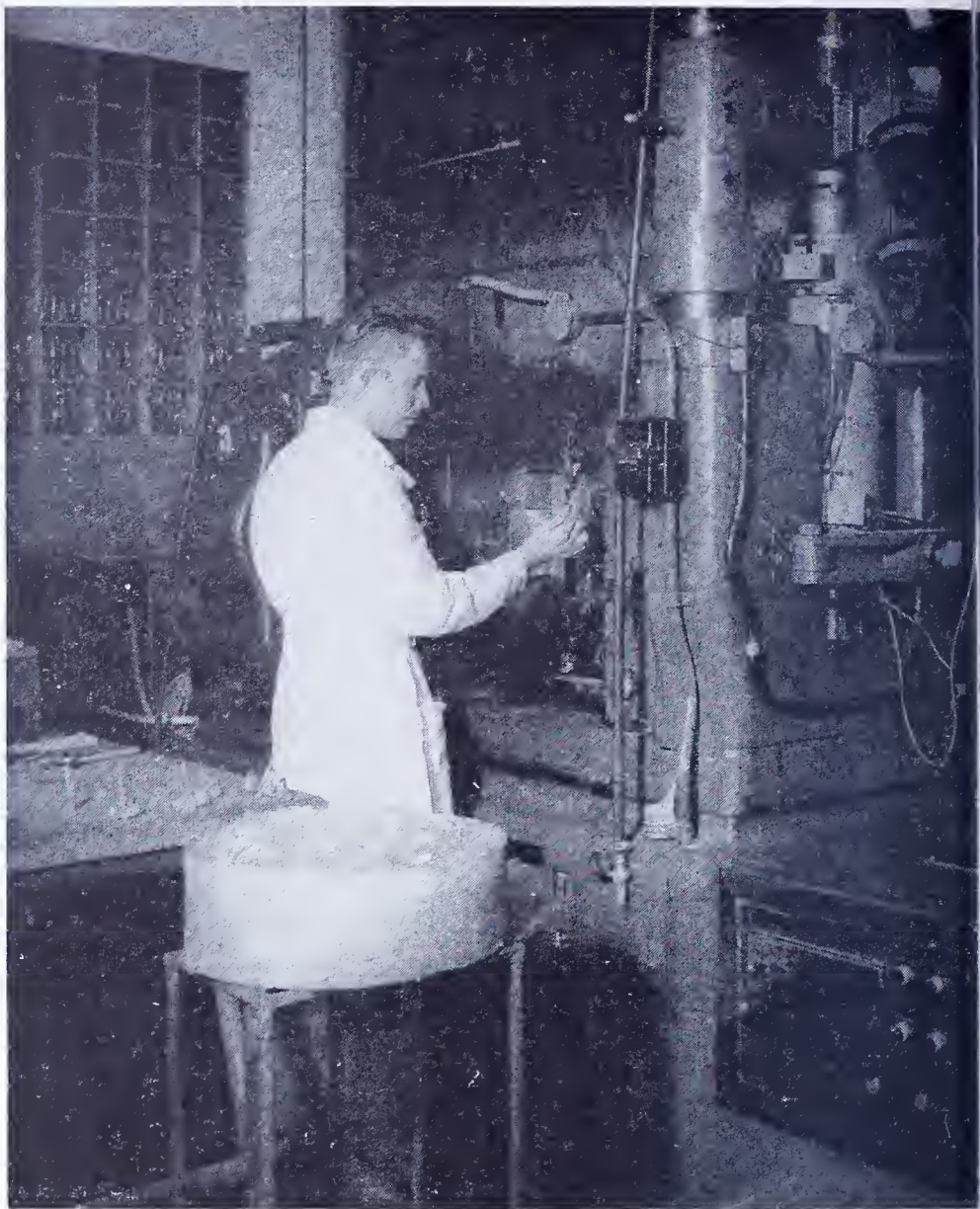
1953 marks the 300th anniversary of Izaak Walton's book, "*The Compleat Angler*," still recognized by anglers throughout the world as THE FISHERMAN'S BIBLE. We of the angling fraternity pause and relax a bit with Walton and his friends as a tribute to the angler of all anglers.



The SWAN as it appears today at Tottenham, Circa 1930 by courtesy Messrs. Taylor, Walker & Co., Ltd. of Stepney, London.

the art of plug making

By BEN C. ROBINSON



FIRST STEP IN MAKING PLUG is to mould bodies of the baits in a giant machine that requires a highly skilled workman to operate the intricate mechanisms.

All Photos Courtesy—James Heddon's Sons

ONE of the most intriguing yarns we can associate with our grand American fishing traditions is that of the veteran old Michigan angler who sat one day, far in the past, on the banks of a brushy stream where he had been fishing and puzzled his cagey mind how he was going to induce some smallmouth bass he could see below in the clear depths of an eddy to rise and strike his hook.

The story goes that out of the old anglers versatile brain there arose an idea that he put forthwith into practice. From one of the nearby thickets along this river our hero cut a dry stick of aspen. As we all know aspen is a good buoyant wood and used considerably in the North Woods by the guides and Indians for the whittling out of a pretty fair sort of ice fishing lure. This was, no doubt, why this particular wood was chosen by the man seeking a new way to allure a snooty smallmouth bass to rise in a flurry of foamy water and hit his idle hooks. At any rate that was the way he did it. He whittled a nice neat little wooden plug out, attached his hook by some simple trick and then made his line fast to the crude artificial wobbler and diver.

Inside a few minutes he had proven to himself there were more ways to intrigue a hungry bass than by offering it a worm, frog or a minnow. The dry bit of whittled aspen—I think I am right in assuming it was this wood that “Jim” used for his first wooden bass lure. What matters in this case was that this man had devised what is reputed to be the first real “plug” lure. The odd part of it is that his progeny, who are still making lures that wobble and dart and allure bass and pike and muskies and other game fish to rise savagely and determinedly and get hooked safely and soundly for the

(Continue article on page 24, more photos on pages 6 and 7)

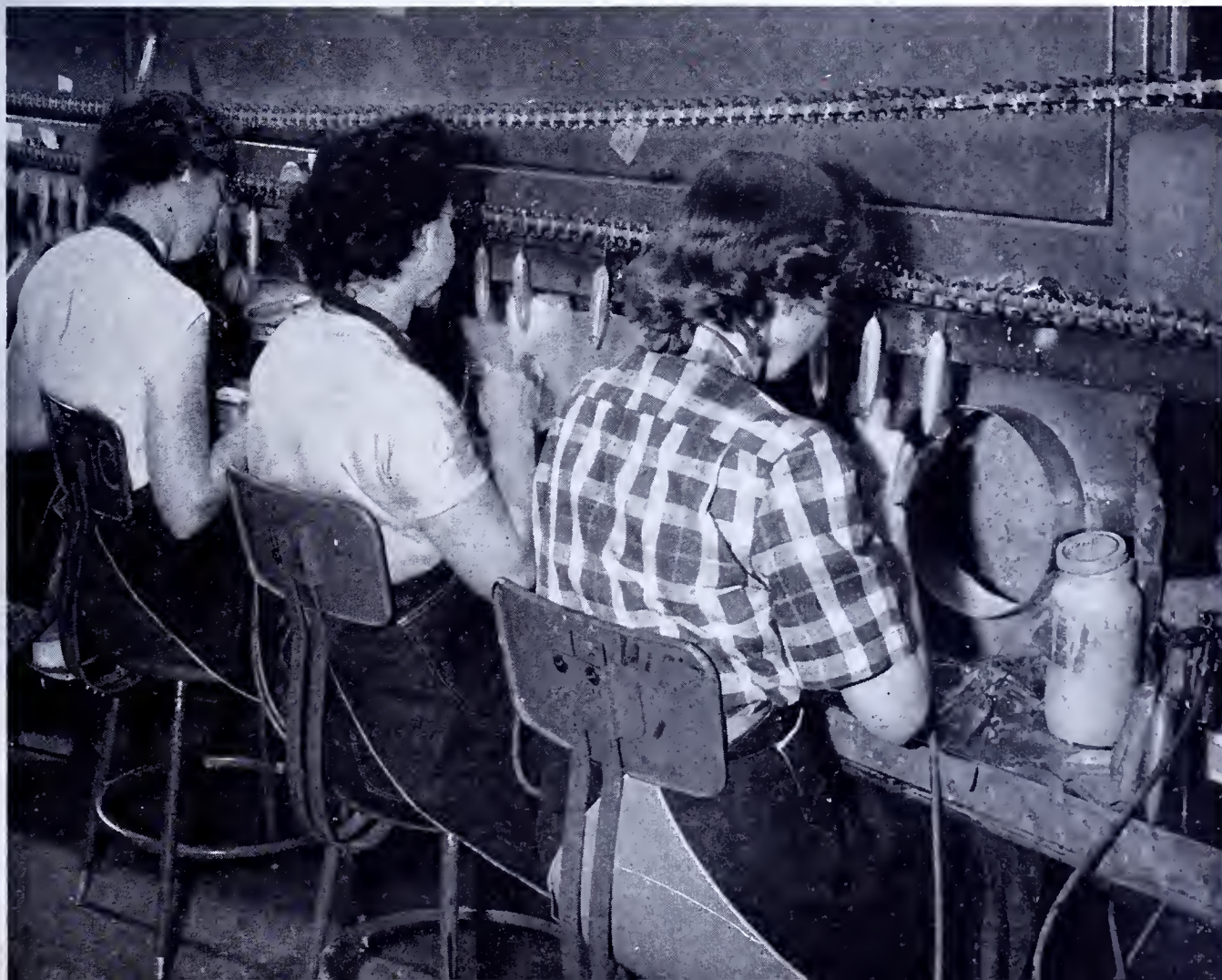


CAREFULLY CONTROLLED PROCESS, workers here are fusing together the plastic bodies.



FINAL COATING OF LACQUER is given each bait for added protection. This together with fact all fittings are stainless steel insures long life and full value with each lure.

ARTISTS tint and color each bait to represent and imitate natural creatures on the diet list of fish. This department is one of chief interest to visitors.





ASSEMBLY of the varied styles and patterns of lures for hooks, headpieces, guards and glass eyes is shown in this department where a woman's deft fingers make a speedy job of the most delicate operations. Note the electrically powered drills and screw driver machines on bench at lower corner.



HOOKS ARE SHARP and this young lady wears the badge of her trade, a strip of adhesive tape protecting the fingers as she sets the hooks in place. Good lighting is highly necessary in the bait-making industry, promotes good craftsmanship.

EXPERT FISHERMEN, the inspectors go over the lures with sharp eyes to see that every detail of the product is perfect from hook point to the final satiny finish.



TESTING TANK is the real final fishing test performed by the inspector with a cut down rod designed for the job. He spot checks each lot of baits off the assembly line to insure consistency of action. How'd you like to toss a lure around day after day?

PACKING 'EM UP appears a pleasurable job for workers in pleasant and comfortable surroundings. Neatly nesting in their boxes the lures are then shipped for distribution to sporting goods shops throughout the world, thence to anglers' bait kits, thence to the end of the anglers' lines, thence to be seized by a big lunker, thence to the pot . . .
MAYBE!





RIGHT after April Fool's day comes the opening of the trout season. It is a big production with special costumes and hat decorations, front page stories and mentions on radio and TV. Frowzy Momma turns out in the mid-watch to feed gravy-eyed Poppa who then goes outdoors for the first time since he was sewed into his winter underwear and roars over back roads in a haze of delusion that he is going fishing. What he gets is soaking wet, always; overstimulated with Old Busthead, usually; and occasionally a few limp white stockers that he

wouldn't consider for either food or fun if they didn't have the magic name, trout. Any why all this drama? *Glamour!*

A few days before the great American holiday, Fourth of July, the bass season opens in a crash of silence. Poppa is at the great American ball game unless Momma is taking his great American vacation, and him with it, at the seashore. No headlines, no radio, no TV, no drama; why? No Glamour!

Because to capture the public fancy, it isn't enough to be good, you gotta be glamorous! Take a big strong All-

American Beauty, curved the right way in the right places, talented, spirited, personality plus. She's got what it takes, you say; but she is just a fugitive from a washboard until you speed her up with one piece bathing suits, mink and Slave of Passion perfume, put her in beauty contests and write her up in Broadway columns as hard, fast, dangerous and irresistible. Then she'll be glamorous, and the public will go for her in a big way.

(Look, Buster; I've been twenty-eight years in the buildup business—that's how I know. Now don't interrupt me again.)

The black bass is the All-American Beauty and the brown trout is the skinny Glamour Babe of the piscatorial world. Both of them had good press agents, but one used glamour treatment and the other just stuck to facts. And you have to have the right treatment. Ike Walton was a good press agent, none better; but when he called the carp the queen of rivers, a very stately, a good and a subtle fish, he didn't build it up in the public mind a bit. He should have said it had sex appeal, or was the secret vice of Dukes.

Now let's see how the cards were stacked against the black bass, the All-American Beauty, inch for inch and pound for pound the gamest fish that swims.

Although it was the most widely distributed game fish in the United States and Canada, originally it was not native to the seaboard slope of the New England and Middle Atlantic states. Yet it was precisely in that section that the spirit of sport fishing was concentrated; there was the bulk

the all-american beauty

By SPARSE GREY HACKLE

and the glamour babe

of the population and, particularly, the cities. And then, as now, the fishing writers resided in the cities. And then as now it was the fishing writers who created and fostered the tradition of sport.

Our tradition of sport—hunting and fishing for fun, giving the quarry a fair chance, rather than for food or slaughter—is of British origin. The states mentioned were settled by an almost solidly middle-class English immigration—farmers, mechanics, merchants, professional men. It was the Southern states that were settled by the gentry.

All the British loved sport, but in the earlier days fishing was the field sport of the middle classes; there was no public shooting for them, but the great landowners did not begin to post their waters until around 1890 when growing national wealth and increased fishing pressure made middle-class people willing and able to pay for exclusive fishing rights. Upland and waterfowl gunning, deer stalking and hunting to hounds were the sports of the gentry. So in this country the Northerners fished and the Southerners hunted and hounded. The West was pioneer country where sport was unknown and men hunted and fished only for food, slaughtering ducks with punt guns and yanking in fish with billiard cue rods. However, there was one exception, as we shall see.

In 1854 a railroad man named Schriver and some friends caught bass in a tributary of the Ohio, carried them over the Alleghenies in a perforated pail hung in the water tank of a B. & O. locomotive tender, and released them at Cumberland, Md., in a canal basin which had access to the Potomac River. This is supposed to have been the first stocking of bass in Maryland. Other transplantations were Massachusetts, 1850; Connecticut, 1852-3; New Hampshire, 1864-5; Maine, 1869, the Susquehanna at Harrisburg, 1869, Rhode Island 1871, the Delaware 1873.

A young Baltimorean, Dr. James A. Henshall had his curiosity aroused by the tale of the railroad-riding bass, and soon afterward he saw his first black bass in the Little Miami River in Cincinnati. In this section of Ohio and Kentucky he found fishermen using ten-foot slender rods of native whole cane, with Frankfort reels—what we now call the bait-casting type—

made with watchlike precision by Meek & Milam, mounted on grooved reel seats, and strung with the lightest “sea grass”—braided raw silk—lines. They cast and played their fish from the reel in a fishing style curiously like the modern spinning-reel fishing. It was almost all stream fishing, and with that light, sensitive tackle it afforded a world of sport. This was the only place in America where the black bass was given a sporting chance.

The significant thing is that this little oasis of sportsmanship in a wilderness of pot-fishing had its source in Pennsylvania, then and perhaps now the greatest sporting state in the Union. It was a mechanic (tradition says a jeweler) from Pennsylvania who made the first free-running “Kentucky” reel and invented the way to use it.

Dr. Henshall fell in love with the black bass at first sight and spent the rest of his life trying to make good his early prediction that it would become “the leading game fish of America.” He almost succeeded. He fought to get back for the bass its original scientific name, and to get it known by its proper name instead of, or as well as, half a hundred local names. He extolled its sporting qualities. But he saw that the heavy tackle was the real enemy of the fish’s reputation, and he campaigned unceasingly for the use of sporting tackle such as he had seen used in Kentucky, and designed rods and lures which sold widely under his name.

Some twenty years after he saw his first bass, the Doctor brought out his classic, *The Book of the Black Bass*, in

which he made his famous “inch for inch and pound for pound” statement. The book was very popular in its day, went through a number of editions, and if you have not read it you have missed the best book ever written on the black bass. But when the Doctor pointed out in his foreword that this was a practical book and did not contain “those rhetorical flights, poetic descriptions or entertaining accounts and pleasing illustrations of the pleasures and vicissitudes of angling”—when he said that, he revealed how little he understood about human nature.

As I said, the Doctor almost made it. In fact, he thought he had, when he wrote in the preface to the revised edition of his book:

“It is pleasing and comforting to think that my efforts in behalf of the black bass for fifty years have not been in vain; for now, in this year of the Lord 1923, after the lapse of a century the black bass has come into its inheritance and is acknowledged, inch for inch and pound for pound the gamest fish that swims.”

He was almost right. What he did not understand was that the condition which had principally helped him was about to turn against him. That condition he noted when, in a symposium entitled *American Game Fishes*, he wrote in 1892:

“Of course, the deplorable scarcity of brook trout fishing, and the continual and inevitable decrease of that noble game fish in our devastated and polluted trout streams, have a great deal to do with the manifest interest and pronounced favor with which the
(Turn to page 26)



spin fishing for bass

in lake and stream

By RAY OVINGTON

Author of the current series of articles in Hunting & Fishing Magazine and of a book soon to be published by The Stackpole Company.



BIG ONES are fooled into striking on the small lures offered in every shape and size for spinning outfits.

YOU HEAR a lot about spinning tackle these days and what a killing rig it is. Most of the stories about it are surprising until you, yourself, go forth to fish with a well balanced spinning rig, and the correct lures for the type of fishing to be done. You'll be a lot better off than with the conventional bait casting outfit for many reasons. Lighter lures can be used, lighter line and rod, meaning more fun from the fish, more excitement in striking, playing and landing. You'll

cast further with no fears of a backlash. You have interchangeable spools for use with various weight lures. With most of the lighter rods you can cast light bass bugs if the choice comes up to change over from the heavy stuff. If you are a beginner at fishing, you can learn to cast a spinning outfit in minutes. If you are a seasoned angler, your chances of taking a better number of fish and bigger ones becomes readily apparent.

Spinning is deadly in the hands of the rank tyro, and something worse in the hands of experience. And, contrary to many opinions, spinning can be just as accurate as bait casting. Given a well balanced outfit, that is, a rod built for specific weight lures equipped with a line to get the best distance for that lure, the angler can spot cast with extreme accuracy. The big trick is in making a direct cast to the target, rather than the common type of high aerial delivery. Cast overhand and time the cast so that the lure sails straight out . . . that is all there is to it. Refinements come later.

Part of the refinements come with selecting the right tackle. A few years ago when spinning first began to catch the fancy of American anglers, there wasn't much choice of equipment. Lures and lines left much to be desired. Today, that picture has changed. One has to keep making trips to the tackle



VARIETY OF LURES in tempting actions and patterns are now available. The spinning outfit has really come into its own in tangling with old bronzeback. Bait fishing is made easier, too, with longer casts, no backlashes and little danger of throwing lightly hooked bait from the hooks.

store to find out what is the latest development. The domestic reels vie for superiority with the foreign imports . . . nylon and other gut substitutes such as Platyl in monofilament and braided form argue their merits for your attention. The grassfire of acceptance, typical of American verve is booming the business of manufacturing and selling tackle . . . good, bad, and mediocre. A lot of good tackle is misfitted to the other units of the rig and other mistakes are rampant among both uninformed tackle dealers and customers alike. To help clarify this situation, here are a few rules and tips to follow in purchasing a rig and then we can proceed to catch a bass or two with hints on methods.

(1) For fresh water bass fishing, the rod should be stout enough to handle the smaller standard and midget plugs and spoons. It can be of tubular glass or bamboo and not less than 6 feet nor more than 7. Shorter they lack sufficient backbone and longer are bound to be whippy in the medium and lighter weights, or strengths I should say, for weight in glass rods is not the determining factor of action. The bass spinning rod must be able to cast plugs accurately, and of equal importance, it must be fast enough in the tip to set a hook smartly into the tough mouth of the bass, or the number of fish that hit and escape will be large. (It is bad enough even in conventional bass plug rod fishing.) The line guides should be of the best quality and the price of the rod will give you an idea here. Remember that nylon wears guides . . . soft ones quicker than hard ones. A set of guides of best quality will cost in the neighborhood of 3 or 4 dollars . . . so it is economy to buy a rod with them already on. Poor guides will wear like a file in a season of normal fishing.

The line, whether it be monofilament or braided nylon, should test at least four pounds but need not be heavier than six. To the experienced bait caster, this may seem like a very light line test, but remember, the tip and the action of the spinning rod, with its greater length and resiliency, will greatly cushion the strike of a bass, thereby allowing a line of less test. Why use this lighter line? It handles better on cast and will not tend to loop off the spool in a bunch, especially if the line is at all stiff. Also, with spinning tackle, the lighter lures can be used, which scare the

fish less on the drop. In putting the line on the reel, always spool it on in a direct line like the treads on a tractor. Do not run it on any other way or it will start its life with a twist. A twisted spinning line will become useless in no time. Don't under fill or over fill the spool. If it is underfilled, the line will cause friction as it slips over the spool lip. If it is overfilled it will spill off in loops and so tangle.

In the lure department, you have a wide selection from midget plugs . . . junior editions of the famous bass getters of old. You also have midget spoons and spinners and finally the class of lures a mile wide considered "spinning lures." These are anything from glorified spinners and blades to minnowlike revolving jobs and wobblers. Some are designed for deep fishing and can be either cast in deep water or trolled. Others are strictly surface and fluttering lures for use in the shallows. Then you have the weighted flies such as bucktails and streamers, and the famed class known as bass bugs and midget popping plugs. Yes, spinning lures embrace the entire field and your spinning rig will cast them all further, especially the light ones, as accurately as any rig you

ever used, with never a backlash worry, a special boon to night fishermen.

In tackle operation, the spinning reel comes with an adjustable drag mechanism with which you should be very familiar. To learn how to use it, set up the tackle and attach the line to a stationary object. Have the drag practically off and bend the rod against the imaginary fish. The drag will release line easily. Gradually tighten the drag, striking once in a while to get the feel of the release and as a gauge on what pressure the rig will stand. You'll be surprised at how much the thin low test line will take, thanks to the design of the spinning rod. Now you feel safe with the lightest line you ever used. Your drag is now set for fishing.

Also on your reel is an anti-reverse mechanism . . . used when you are trolling and put into effect as soon as a fish hits. This will disengage the reel handle as the line is going out due to the pull of the fish, eliminating handle spin entirely, but leaves it in contact when you want to reel him in to maintain the strain. Strike the fish harder with your spinning rod and have no fear . . . the drag will save

(Turn to page 25)



RANK TYRO can learn art of spinning in short time, with experience can shoot lures and baits under overhanging trees, around brush, stumps and lilypads the hangouts of big bass. Here's a spinning outfit up against a nice lunker. Brother, this is livin'!

PORK CHUNK

a surface lure



Big bass water with plenty of weeds and pads where pork chunk pays big dividends.

PORK CHUNK, an old-fashioned surface lure, is practically unknown and little used today, but fished with a spinning rod this lure again becomes the consistent top-water bass producer the old-timers remember.

Years ago it was common practice to fish pork chunk on the surface with a cane pole some twelve or fourteen feet long. The method was simple but effective. A heavy line of about the

same length was attached to the pole and a large hook tied to the line. A piece of pork chunk shaped like a frog was placed on the hook and completed the rig. The angler then cast to likely looking spots and simply skittered the chunk over the surface by swinging the pole. The natural lifelike action of the chunk over the water's top caused the downfall of many a bass in those days.

This method of fishing has pretty well vanished and most modern anglers don't think of pork rind as a surface lure but rather as an underwater lure used in conjunction with spinners and spoons. The explanation is simple. Pork chunk by itself is too light to use with any of the standard casting rods, with the exception of the tournament rods over six feet, and too heavy for use with a fly rod.

PENNSYLVANIA ANGLER

andad's day

GOES MODERN

However, chunk can be fished with spinning tackle quite easily, and when maneuvered properly, becomes a deadly surface lure for bass.

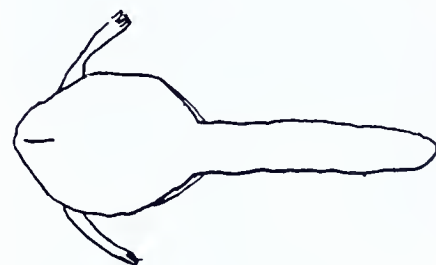
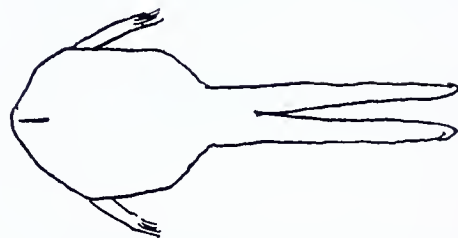
I became acquainted with pork chunk two summers ago. Two of us had combed the shore lines of a local reservoir for over two hours with our spinning rods, using midget surface plugs. Eddie, in this time, had two half-hearted strikes and missed both, and I hadn't had so much as a touch. Several weeks previous I had read of chunk being used as a surface lure for bass and had bought some. These were thrown into my tackle bag and promptly forgotten. This particular morning I suddenly remembered the pork chunk and decided to give it a trial. The surface plug I had been using was quickly replaced with a large weedless hook and a pork rind frog. It took a few minutes to acquire the knack of keeping it on the surface, but this was soon mastered. My first real cast was along the shore of a shallow bay that had previously been fished with conventional surface plugs without results. The chunk hit the

By ROGER K. CONANT

water about a foot from shore and I started working it back parallel to the land's edge. The retrieve was about complete when a bass appeared from nowhere and took the chunk with a rush. I was so surprised I missed him by a country mile. The next cast was a repetition of the first, and in the following half hour I had eleven strikes and landed four nice fish, all in the two-pound class. By this time Eddie had caught up to me and was watching the action with his mouth hanging open.

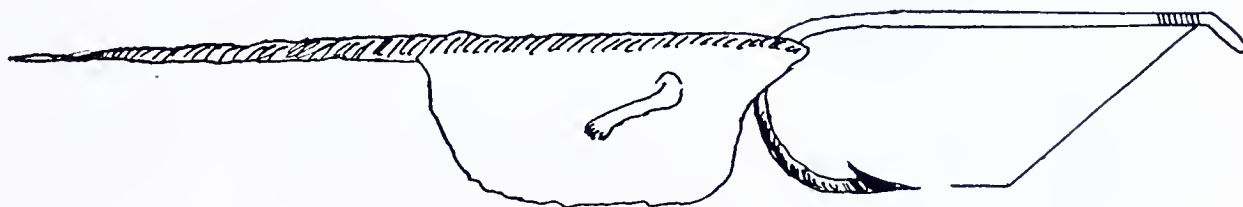
Thinking perhaps this unexpected success was an accident, I tried the pork again the following weekend with practically the same results. In two hours of fishing twenty-one bass were hooked. Eleven of these were landed and released. All of them were two

(Turn to page 27)



Two most common types of pork frogs. Writer has found one with split tail most effective.

Correct method of placing pork chunk on weedless hook.



bait fishing for BASS

By DON SHINER



No need to carry bait when bass fishing. Plenty of bait to be found in fields and shoreline. Grasshoppers, worms, crawfish, salamanders, minnows and hellgrammites plus many others offer a variety of bait without disturbing river or creek bottom often harmful to fish life.



Bass like variety, sometimes prefer one over the other. Shown here are pollywog, salamander, dragonfly nymph, crickets grub worms and perch belly fins. Smallmouths go for 'em!

TODAY the emphasis on smallmouth bass fishing is placed on artificial lures with the casting and trolling techniques well publicized in every fishing journal. This method of angling for bass provides great creels of enjoyment for anglers, but these decorated lures should not be stressed continually, lest the fine art of bait fishing be forgotten. Indeed, it is refreshing to skip store-purchased hardware and spend a quiet afternoon along a stream bait fishing.

A great many baits are used to catch bass in the streams of Pennsylvania and though anglers overburden themselves carrying large assortments of baits, it is unnecessary. Part of the great fun of bait fishing is in searching fields and along stream banks for bait. All the necessary baits are found right along the stream, there for the anglers to use as they need them. A wise angler, however, will take no more bait than he will use, leave trout streams undisturbed. Also use extreme care not to ruin the contour of the

creek bottom by carelessly upending rocks.

Hellgrammites are available under the stones on the shoreline or in the riffles; worms can be dug in the sod banks; grasshoppers and crickets can be caught in nearby fields; caterpillars picked from the limbs of willow trees growing nearby; salamanders or so-called lizards are plentiful in the small springs and runs that enter the main stream; pollywogs, frogs, minnows, crayfish and waterworms are everywhere along the banks; grub worms are found in rotted tree stumps and dozens of other baits, too numerous to mention, are readily available to fishermen, making it unnecessary to carry any while fishing.

Good baits and wise use of them play an important role in bass fishing. These bronze-colored gamesters prefer lively baits and when they find one, act much like barnyard chickens. When the latter finds a tidbit, it selfishly grabs the morsel and runs away from the flock to a secluded spot where it

stops to eat. Bass are the same. Give them a wiggling worm, a hellgrammite or catstone and they will stage a run. At a selected spot, they will turn and swallow the bait. Unless given the freedom to make this first run few bass will be creeled.

Smallmouth bass are found in a variety of waterways. They are found in small creeks, in rivers and in sheltered ponds and lakes, and there are methods of bait fishing to suit this variety of water.

Small Creeks

Many fishermen prefer angling for bass in small creeks and streams, enjoying the good angling found in the deep riffles and the short walks between pools. They become impressed with the strong fighting spirit displayed by the creek bass along with intimate glimpses of nature disclosed to them along the stream while searching for bait.

When bass season opens, the creeks are normally low and clear, giving the bass increased vision for detecting fishermen at greater distances. They are quick to become alarmed at the slightest vibration caused by anglers wading carelessly in the water. But by approaching cautiously, and gently dropping the bait into the riffles and shaded pools, it isn't long until the rod bends happily with the weight of a hefty bass.

Creek bass take up residences near big rocks, log jams and undercut banks. When a bass is caught from a particular pool another bass will usually move in and take up claims there. Available food, natural shelter, depth of water, temperature and supply of oxygen play vital roles in the selection of a home. A location that appeals to one bass will appeal later to another.

Large Rivers

Large streams are also favorite haunts of bass and many fishermen. In this type stream bass lie near rocky ledges, gravel bottoms and natural obstructions that break the force of the current and provide a comfortable supply of oxygen. Riffles passing over large rocks, slate ledges, rock formations in eel walls and quiet pools hold bass.

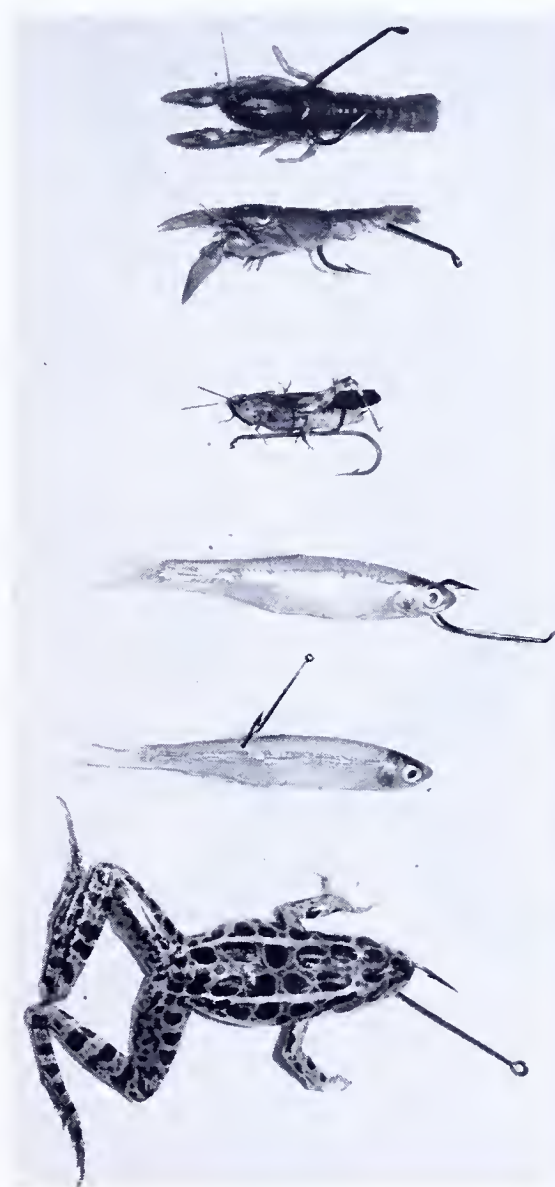
Early morning and late evening finds the bass feeding in riffles, taking most baits that drift past. As the heat of the day increases, they retreat to deeper pools, taking shelter near rock ledges and sand bars. Wading in the stream is necessary to reach these natural locations. Waders are convenient but hot for this big water bass fishing, and many prefer an old suit of clothing and sneakers.

Another popular method of bait fishing for bass is drift fishing. On such rivers as the Delaware and Susquehanna, many fishermen motor up-

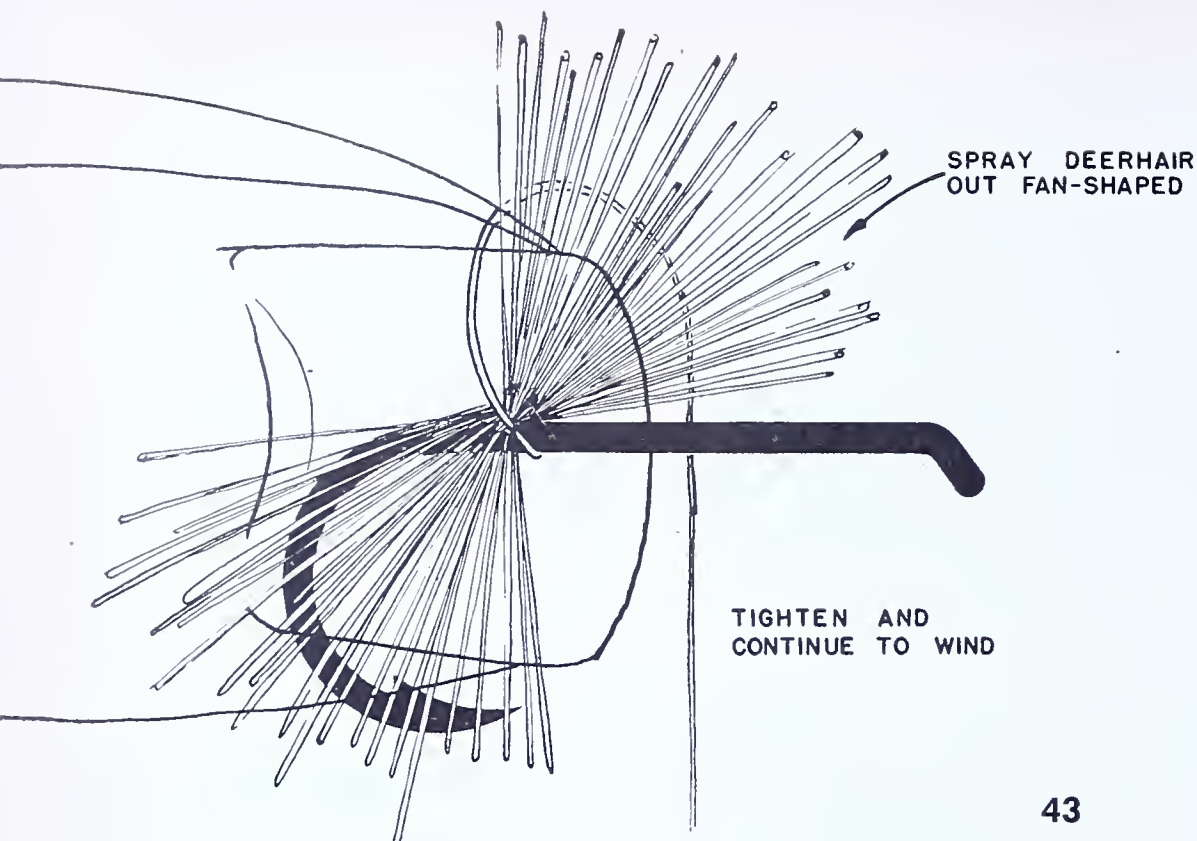
stream for a few miles, then relax while drifting leisurely with the current while baited lines trail behind the boat. Parties of bass fishermen make these float trips together, enjoying the companionship and gaiety of numbers.

Hellgrammites, catfish or mad toms, salamanders and night crawlers as well as other baits are drifted behind the boat on the float trip downstream. Occasionally the party may anchor at a favorite eddy for an hour of still fishing, then the downstream trip is resumed. One of the highlights of such an

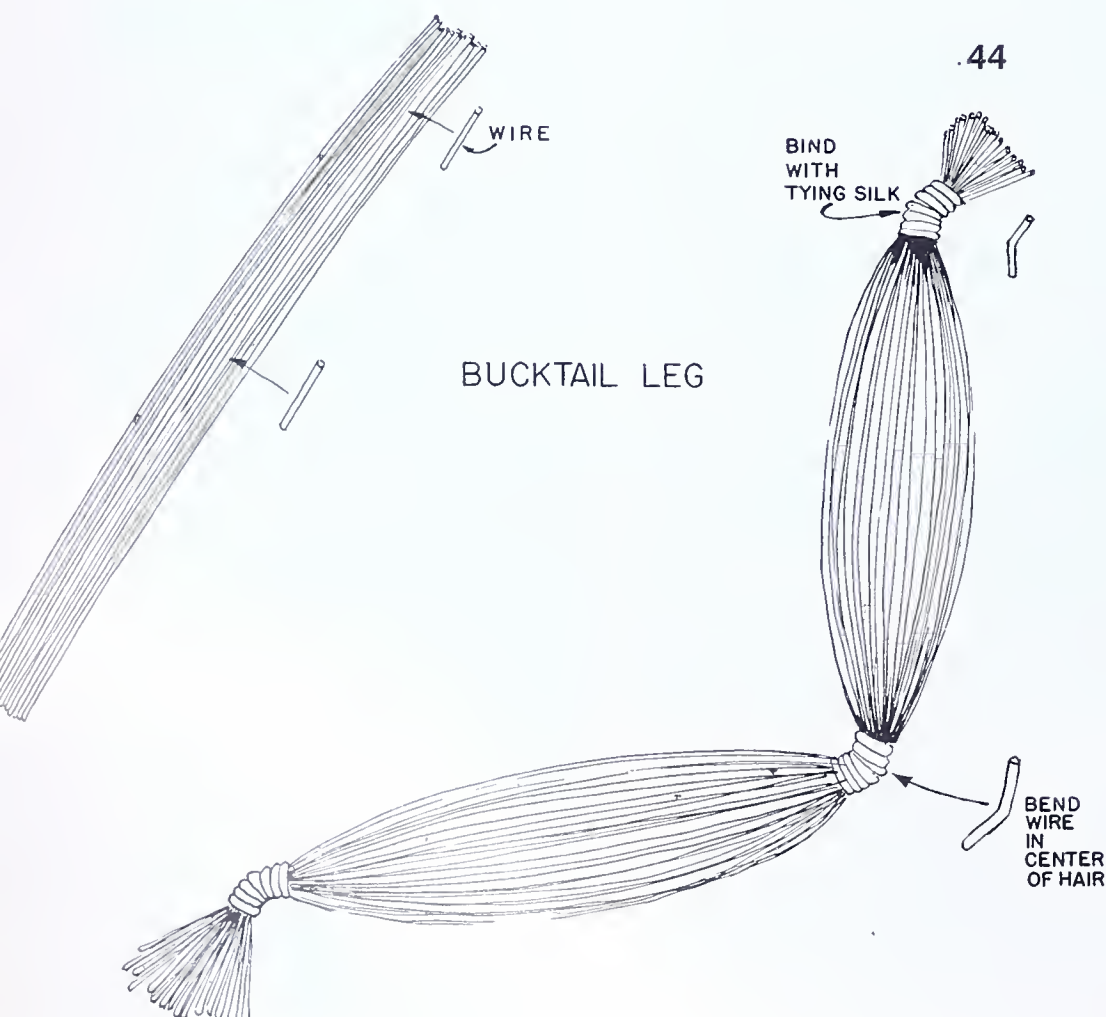
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Here's how to place baits on the hook. Top right shows June bug with hook impaled through body; caterpillars hooked lightly under skin or wired to hook; hellgrammites hooked gently under the collar or very lightly through skin of tail; and the grub worm. Left column top, shows methods of hooking crawfish; grasshopper wired to hook can be used as floating bait; minnows hooked through both lips or under skin beyond dorsal fin; and frog.



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THE name Bass Bug is quite misleading to the tyro. He usually associates these lures with the large- and small-mouth black bass. It is quite true these lures were first constructed to take bass; but now they are universally used for all species of fresh or salt water fish that will take a lure on the surface of the water. Considering the great number of fish that will strike these large fly-rod bugs, it is only natural there should be a countless number on the market today.

There is one characteristic which distinguishes the "bugs" from fly-rod plugs. Hair or feathers used separately or together are part of the construction of the "bugs," whereas fly-rod plugs are usually made conspicuous by their absence.

Any fly tyer who is able to tie trout flies will find the bass bugs quite simple to make. Even though there are many different patterns, the techniques of constructing these various lures are quite similar. In this article I will cover only hair-bodied and cork-bodied lures. They are typical examples and the tyer who can tie or construct the ones illustrated should be able to imitate any of the others without much difficulty.

There are a few important fundamentals that should be remembered when making "bugs." First, be sure you have sufficient hooking space. By this I mean plenty of space between the body and the barb of the hook. If too little of the gap of the hook is exposed, it is very difficult to hook the fish. In addition the bug, in most cases, will not ride as it should with the hook in the water.

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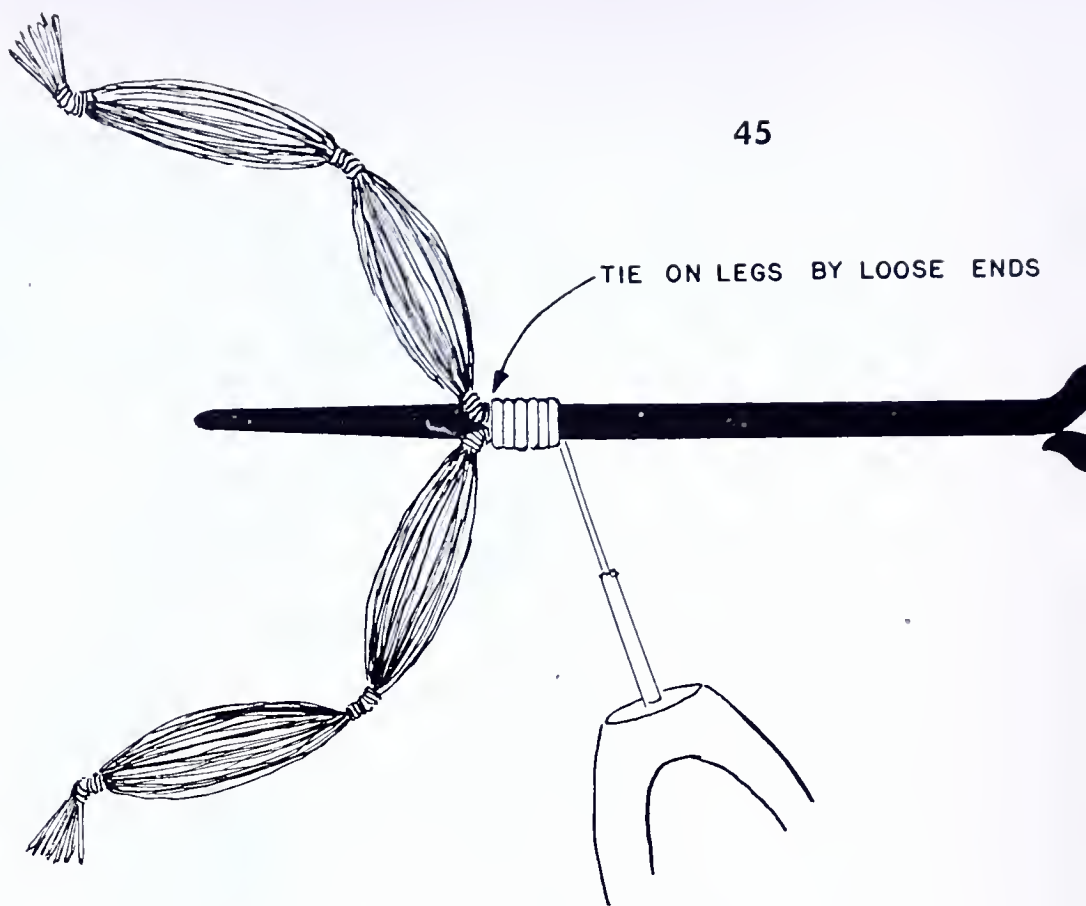
When tying "bugs" for your own use, construct them so they will work well with the rod, or rods, you intend to fish with. There is nothing more annoying than to try to fish with bugs so large they cannot be manipulated or cast properly. Beginners commonly make this mistake.

If you are duplicating a lure, be as exact as is possible. No doubt the original was satisfactory in balance and action and any slight change may ruin the action or floating qualities. Of course, many lures can be improved upon but the beginner does not yet know the proper proportion and the mechanics of construction.

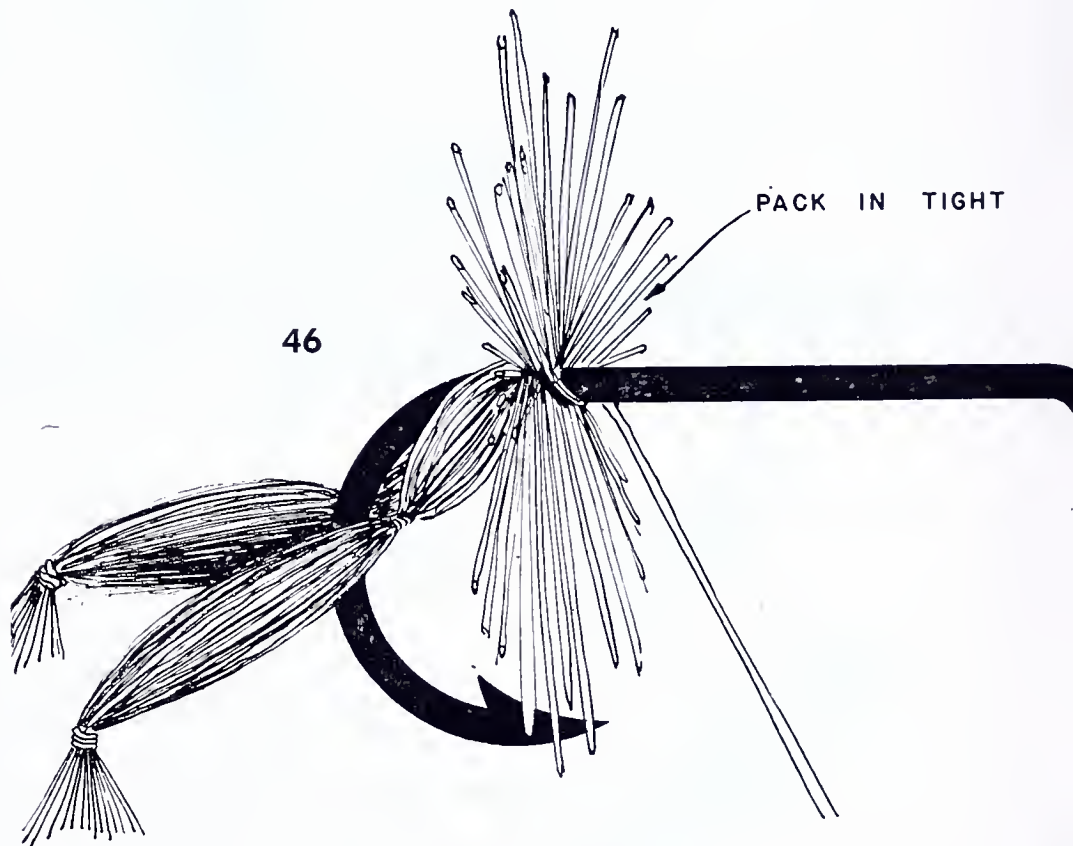
Hollow Hair Bugs

Antelope, big horn sheep, caribou, deer, elk, moose and reindeer all have hollow hair that can be used for hair bugs. However, one must remember that all the hair from any one hide does not spin on equally well. This is especially true with white tail deer hair. Select only the coarsest hair. Hair from the neck and back is quite fine and nearly impossible to spin; but is excellent for the wings. Beginners should remember that any hollow hair will spin easier on the bare shank of the hook than it will if the shank is covered with tying thread. The size of the tying thread one uses is usually determined by the size of the bunches of hair to be spun on the hook. The more hair one uses, the heavier the thread must be, and vice versa. Be sure the thread is heavy enough for the work you want it to do. It is well for the beginner to practice spinning on the hair before starting to tie hair bugs. Practice until the hair spins on

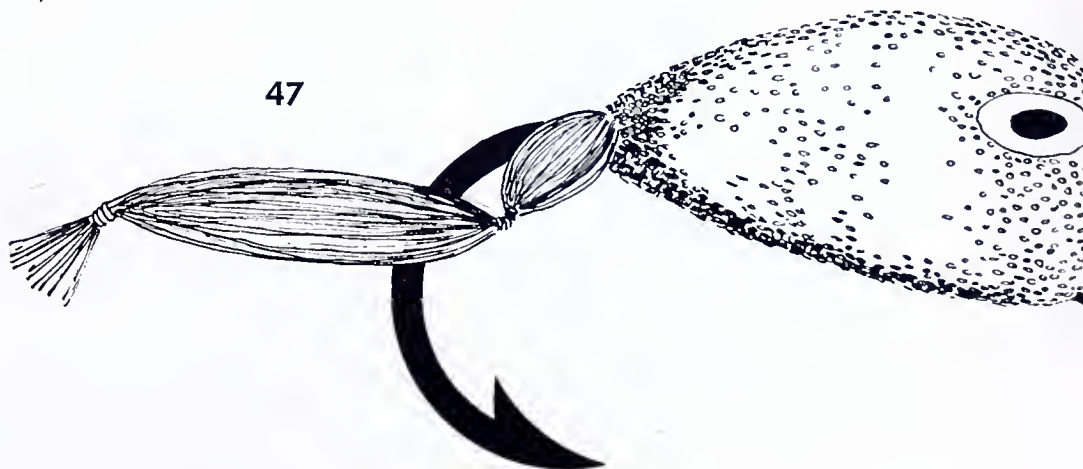
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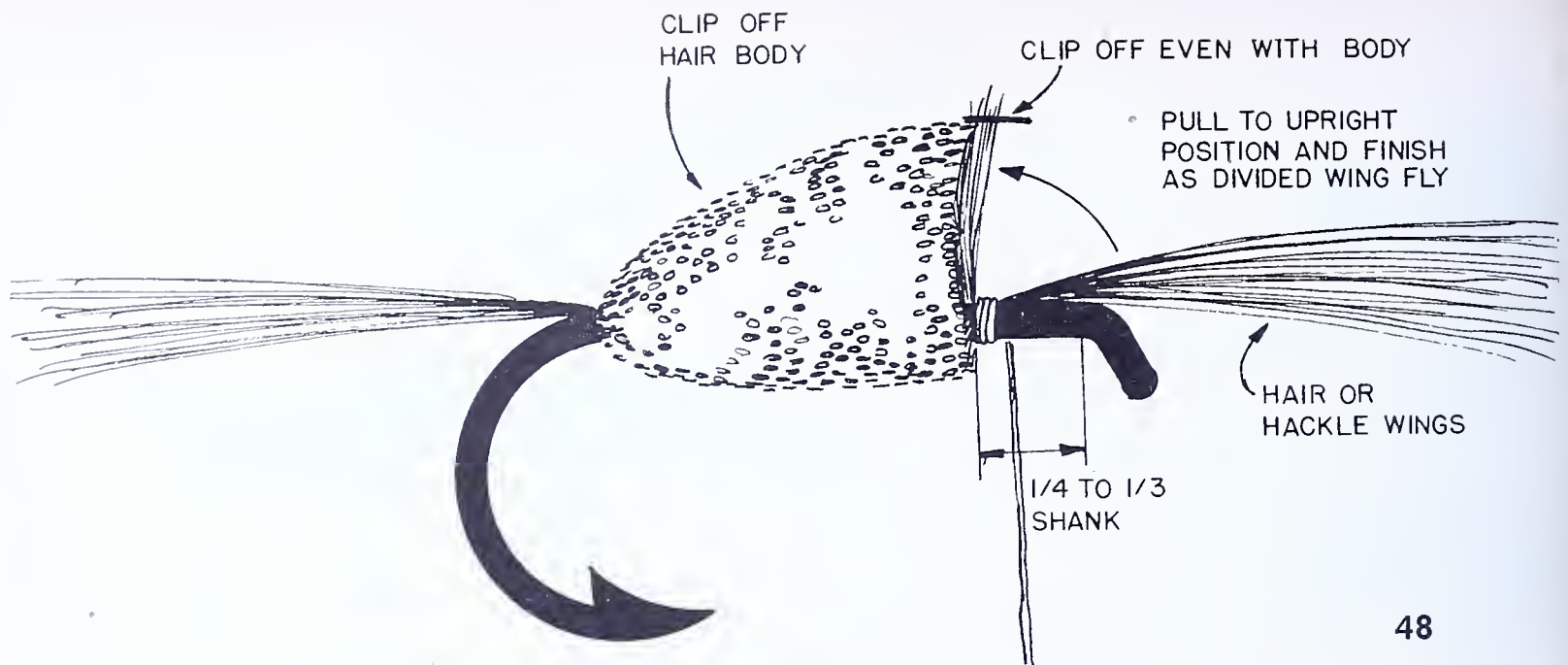


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smoothly and evenly around the shank of the hook. Diagram No. 43 illustrates how this is done.

First secure tying thread at the bend of the hook, cut a small bunch of hair from hide and hold on hook as illustrated. You should spread the hair out into a fan-shape by shifting thumb and finger. Now take one or two (I prefer one) loose turns of tying thread around hair where it is in contact with hook. Draw up on the tying thread until the hair starts to flare out, then let go of the hair and quickly make several more turns passing the thread among the hairs. Now wind tying thread to the front of hair. Next, hold at rear of spun hair with thumb and finger of left hand to keep hair from moving on shank; then with thumb and finger of right hand push hair together so that it will be as compact as possible. Repeat this process until shank of hook is covered or until you are satisfied you have mastered the technique.

Diagram No. 44

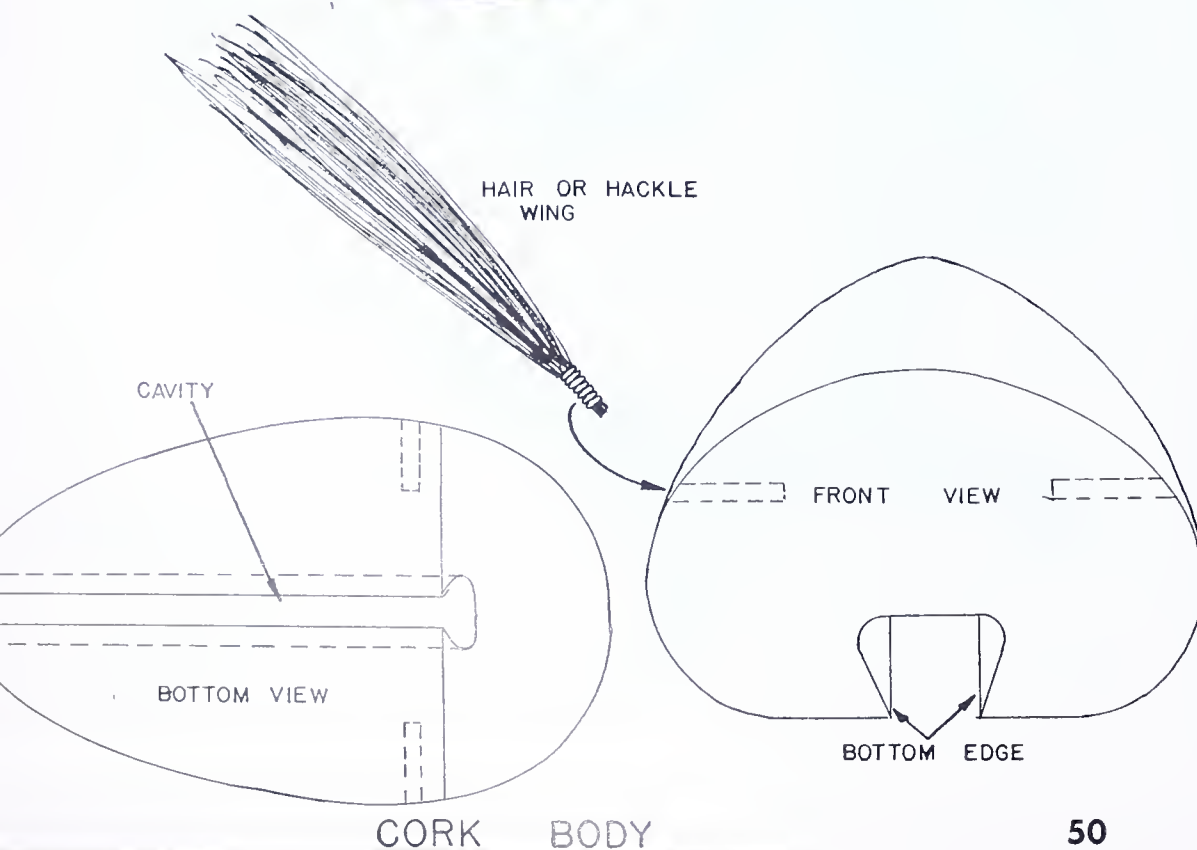
This diagram illustrates one method of making legs for a hair frog. Here deer tail hair is used. Select hair long enough for the legs, then pull out all short hair and even up the long ones. Take a piece of spring steel wire and insert in the center of the hair as illustrated. Wind over tightly as illustrated; then lacquer and bend as desired. Some tyers only insert wire in the knee joint, others in all three joints. The illustration shows my preference. This Diagram shows only one leg. Two are of course needed.

Diagram No. 45

Diagram No. 45 illustrates how and where the legs are tied on the hook. Secure tying thread just in front of bend, then lacquer. Now tie top end of each leg to hook. After the legs are secured, one may run the tying thread to the rear of the legs and wedge the



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thread tight against the legs to make them stand out at a wider angle. This spread, of course, is optional. Cover all windings with lacquer.

Diagram No. 46

This diagram shows the first bunch of hair spun on the hook after the legs have been tied on. I might add that the first bunch or two of hair is the most difficult to spin on smoothly because of the tying thread on the shank. Be sure the hair is packed tight up against the legs. Repeat, spinning hair until the bare shank is covered with the desired amount. It is a good idea to apply a drop of lacquer or liquid cement to the shank where the hair contacts after each bunch of hair is spun on. This will help keep it from twisting on the shank of the hook.

Diagram No. 47

One may go all out with his artistic sense when trimming hair frogs. I have never found that looks added very much to the fish-taking qualities of the frog. Diagram No. 47 just suggests one shape to trim the frog. Eyes may be added or built up with plastic and painted as desired.

Diagram No. 48

Diagram No. 48 illustrates proportioning of hair bugs. Single tail is tied on, then hair spun on up to one-fourth or one-third distance from the eye. Trim to desired shape. Tie in wings as illustrated. Wings are then divided as shown in Diagram No. 31 (April issue of Angler). Spin additional hair up to the eye of hook and trim.

Diagram No. 49

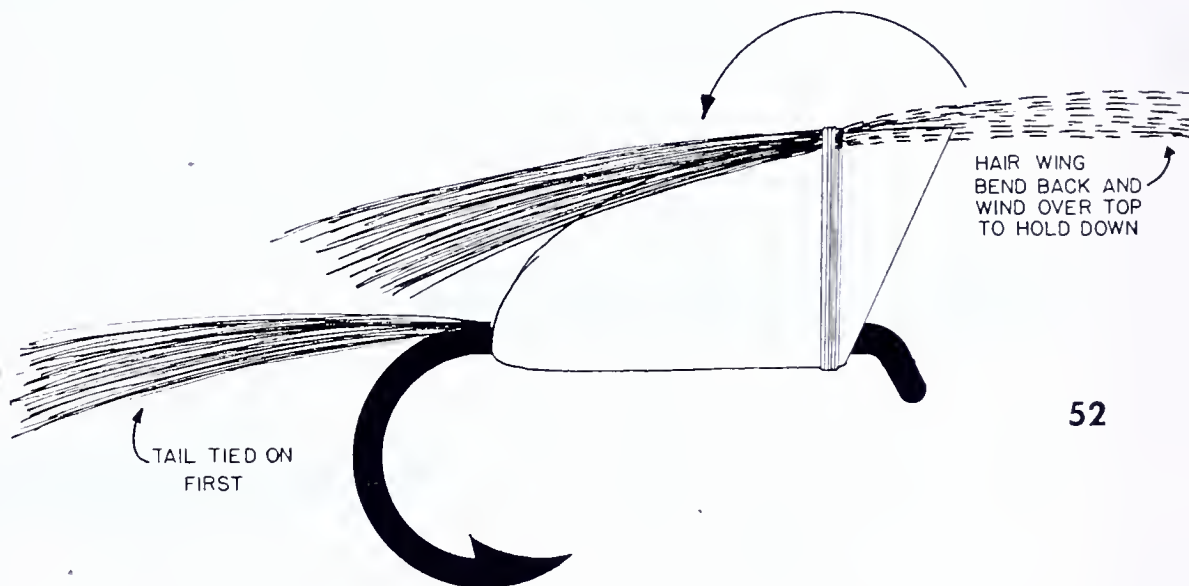
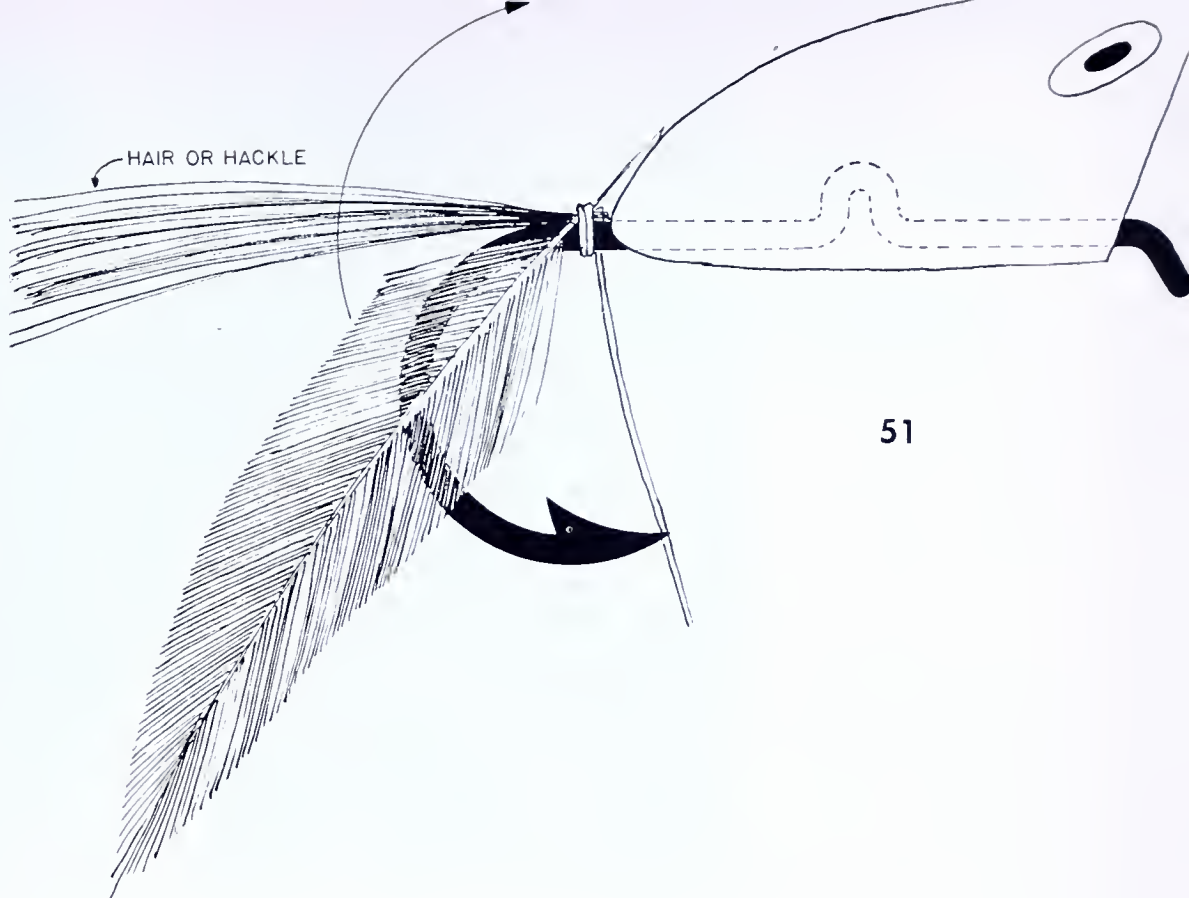
Some tyers spin on exceptionally long hair when they get to the point where they want the wings; then when trimming the body, they just leave bunches of long hair for the wings. If the hair is uneven, it may be trimmed as illustrated. The wings may be tied or clipped at any angle on the body.

Cork Bodied Bugs

Diagrams No. 50, 51, 52

There are many different shapes and patterns of cork bodied bugs. Diagram No. 50 illustrates the steps in preparing a cork body for the hook. Bodies may be shaped by hand from cork cylinders; but one can purchase them already shaped just about as cheaply as the cost of the cylinders.

If you are going to make a number of bugs, it is best to prepare all the cork bodies in advance. Slots in the bottom may be cut with a razor or



sawed; or small files may be used. I usually shape my slots as illustrated, making the entrance to the cavity just large enough to slip the hook into place. If the bug is to have a tail, tie it on the shank first and cover windings with lacquer or cement. Humpshanked hooks are best to use for cork bugs as they keep the body from turning on the shank.

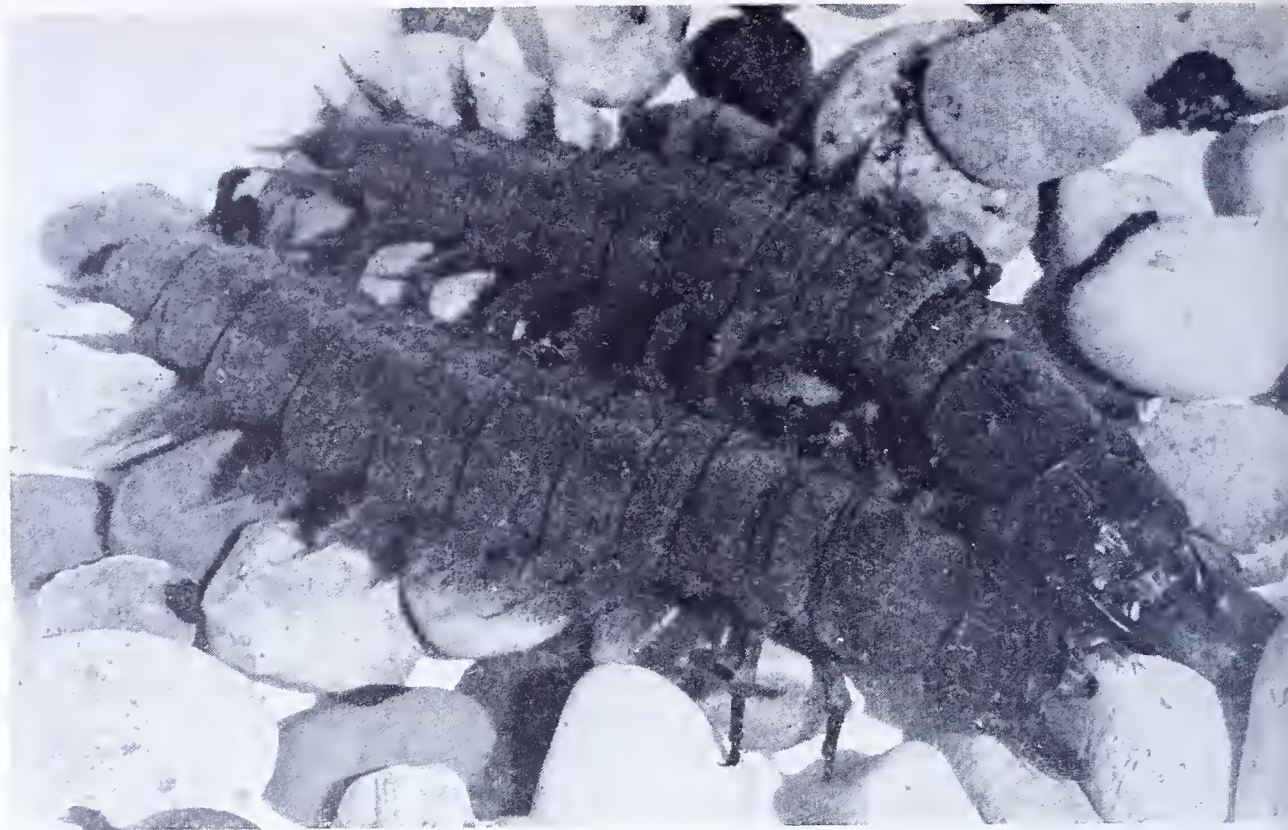
Many different cements are available but be sure to use one of good quality. I mix plastic wood and cement together, fill the cavity, then insert the hook. I now pack and smooth off the surface and ends of the cavity. I allow it to set for at least twenty-four hours and then smooth off the surface with sandpaper. If the surface of the cork is pitted, it should be given a coat or two of filler. Some fill the pits with plastic wood and when dry, sand again.

Paint or spray with desired color. If the pattern calls for wings, tie them on last; then lacquer windings. Small holes may be drilled in bug in any position desired and wings of hair or feathers inserted. Fill cavities with cement before inserting wings.

Spent wings that are too long and heavy are very difficult to cast. I have seen some that would actually spin enough to twist the leader.

Upright wings that are too long and heavy will make the bug topheavy and it will not ride with the wings up in the air. In addition, this bug will be very difficult to cast.

In concluding, let me suggest that the beginner had better keep his bugs on the small side. They are simpler to tie or construct, will be easier to cast, and more enjoyable to fish.



HELLGRAMMITE is larval stage of the Dobson Fly, isn't pretty yet we know gents who carry these critters in their hair under a hat while fishing for bass, much like hellgrammites in the belfry.

high jinks with

hellgrammites

ONE SPORTSMAN I know was divorced from his first wife because he used hellgrammites for bait. Most others had no such luck, however. They merely caught plenty of fish.

Although hellgrammites are found almost wherever there is flowing water, they are not used too extensively. They rate very near the top as bait for smallmouths, brown trout, and channel catfish. But still you will meet few anglers who habitually use them.

Perhaps the doggone things are too ugly to have around—even in a bait container. Maybe you just don't know how to catch them. Or possibly you've had trouble using them after you caught them. Let's discuss it in that order.

A hellgrammite is the larval, or aquatic, stage of the Dobson fly. It looks like a centipede with a wicked pair of pincers. You can either handle them with respect from the very beginning or you can find out, first hand, that the pincers really are wicked. With a reasonable amount of caution, you can keep all your fingers intact, avoid a bloody stump.

When an adult Dobson female is ready to lay eggs, she selects a precarious spot underneath a bridge, a rock ledge, or overhanging tree branch. The egg clusters are whitish, about the size of a nickel, and may contain as many as 3,000 eggs each. Sometimes the clusters are numerous enough to give the place a paint-splattered look.

By **ERWIN A. BAUER**

When the hellgrammite hatches, it falls into the water and begins the aquatic phase of its life. For two years and eleven months, more or less, it frequents the undersides of rocks and logs. It grows fat, slowly, on a diet of fellow, but smaller, residents of the rocky riffles. If it can survive its two-plus-years span without being reduced to so many calories by a smallmouth or rock bass, it eventually emerges into a graceful and colorful Dobson fly. Thereafter its use as bait is all but lost—so we'll return to the uglier, but more useful larval form.

Hellgrammites are easy to obtain.

PENNSYLVANIA ANGLER

Alone it's a fairly tedious matter, but with one helper you can collect an ample supply of bait without too much wear and tear on your patience. You should have a legal-sized minnow seine with a fairly small mesh.

Station your helper just downstream from several large rocks in a riffle. Lift three or four of the rocks quickly, one after the other—and then have your partner raise the net. You should have several hellgrammites. If you didn't, it may be that you lifted the rocks too slowly. The quarry needs only a brief second to grab a hold on the underside of the rock and to prevent being washed into the net.

Don't try too many rocks at once and do not disturb the bottom unnecessarily. Raise the net frequently or the Dobsons will crawl to the bottom of the net and escape beneath it.

Hellgrammites are the hardiest of live baits. You can keep them for a long time with little attention. If it's a good day and you're a skillful angler, you may catch several fish on one individual.

Any of those belt-type bait boxes will do the trick of carrying them while you fish. Just line the bottom with leaves or moss and sprinkle with water occasionally. Those flat tobacco cans are suitable, too, since they fit so well into shirt or pants pockets. If you're a pipe smoker, though, better stick to the belt-type models—or use a different brand box for the bait. You mistakenly may load up with "hoejacks."

I always use a fairly long leader when using hellgrammites. Depending on the speed of the current and type of water, I may use a small split shot or two. The hook should be a short-shanked six or eight, hooked under the front of the collar and coming out the rear. Never, under any circumstances, bury the hook in the hellgrammite. It kills them—and there goes your effectiveness.

Just as important as hooking is removal of the tail hooks. If you neglect to do it, you might as well go back to other baits. The hellgrammite will grab the first rock or obstacle he contacts, doggedly crawl under it, and you're snagged. At best you'll wind up with a bare hook and a frayed leader.

Fortunately there is a simple and quick way to amputate the hooks. Here's how. Hold the critter by the head, between your thumb and forefinger, and with his body away from

(Turn to page 28)

trout fishing in pennsylvania

By GILBERT FREEDMAN

We can understand why Gilbert Freedman, 18-year-old senior at Susquehanna Township High School not only received an A-plus for this essay on trout fishing but also won a scholarship to Pennsylvania State College. An ardent fishermen for many years, this young man will be getting a higher education not only at State College but along Pennsylvania's best trout streams.

OF ALL types of game fishing possible, the one that furnishes most satisfaction for the most anglers in Pennsylvania, as is shown by the three-quarter million fishermen who take out a license, is that of angling for the noble trout . . .

"The trout is a fish highly valued both in this and foreign nations. He may be justly said to be a generous fish, a fish that is so like the buck that he also has his season; for it is observed, that he comes in and goes out of season with the stag and buck."

Here, then is the Seventeenth century conception of the game fish known as the trout as set down by the original and one of the most authoritative anglers to ever live.

Our great state of Pennsylvania has three distinct types of trout, all game fish. The first, and original, even being referred to as the native, is the Brook trout.

"Among anglers the Brook trout is the aristocrat of fresh-water fishes. His rich and gorgeous browns and pinks, touched with blue and crimson spots; his wariness, alertness, and cunning; his shyness and seclusion—these, coupled with the delicacy of taste which he adds to the dinner table, bars all competitors for blue-ribbon honors," is what one nationally famous outdoor writer has to say of the Brook trout. He may grow as large as eighteen inches and weigh a pound and a half, but will usually average about nine inches. Besides his beautiful side markings, he may be distinguished by the white outlining all his fins or by his mottled back. His general overall appearance is that of brown.

The Brown trout is considered the brightest and most cautious of fish. His reputation as a selective feeder is well known, meaning that at one time or another he will be feeding on one certain food form and nothing else. He may be described as dark brown, with red and blue spots. This breed is not pure, being a cross breed between German Brown and Loch Leven of Scotland. The Steelhead trout of the Northwestern part of our country is thought to be this breed after it returns from a life in salt water.

The Rainbow may be distinguished by that fact that it is the only one of the three, although all have spots, that has spots on its tail. Its spots are black, on a green back. The Rainbow gets its name

by the gentle pink stripe that runs the entire length of its body, on either side.

Trout and the Law

According to the Pennsylvania Fish Commission, trout may be taken between April fifteenth (commencing at five o'clock A. M.) and July thirty-first. A new law, put into effect two years ago states that no fishing may be done in streams stocked with trout from midnight March fourteenth to opening day, to protect the trout and save the sport.

The creel limit is eight, this number also your possession limit. You may use as many as three lines and three hooks to a line and the fish must bite or strike and not be snagged. A resident's license is two dollars and non-resident's costs whatever the visitor's state charges their visitors for licenses.

Life

The female trout lays her eggs in quiet, shoal water where they are fertilized by the milt of the male. The egg expands and in a few days the general shape of the trout can be seen in the egg. Live eggs are a pinkish amber and white eggs are infertile. In five weeks eyes develop and the organs can be seen working through the transparent body. During this stage the eggs may be transported for artificial propagation purposes. In six to ten weeks the fish will begin bouncing around inside its egg, suddenly break it and burst forth. On close inspection a sack trailing from the back of the baby trout can be seen; this being food supply for twenty to thirty days until he can fend for himself.

The fry, as they are called, are ready to place in a stream in twenty months. In natural propagation ninety-five percent die before reaching maturity because of natural enemies such as snakes, birds, larger fish and disease.

A trout may mature at four inches or still be growing at thirty inches. It all depends on the size of the stream, the amount of warm days, amount of food and its natural tendencies.

Habitat

Trout may be found anywhere in our state where there is fast moving, cool, pure water. Although some trout live and are fished for in lakes and ponds the majority are found in the tiniest of rills to the largest of rivers.

They seek protective spots, probably from a fear of fish-preying birds and will venture forth only when no warning vibrations come to them, when there is no suspicious or moving shadows, and when no extra sediment is drifting downstream.

Feeding

The trout feeds in three indefinite positions in relation to depth of the stream. Feeding on the bottom, he will pick up worms of all sorts, nymphs, which are in-

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- RETIRES AFTER 39 YEARS -



MR. DEITER

With this issue, the PENNSYLVANIA ANGLER pays signal salute to Robert P. Deiter, former comptroller of the Commission.

"Bob," as he has endeared himself to us, has gone into voluntary retirement after 39 years of faithful and efficient service. Mr. Deiter began employment as a bookkeeper on August 4, 1914 and has served over the years as the watchdog of the Commission's finances. He not only saw the present Pennsylvania Fish Commission arise from a small modest beginning but he arose and grew up with it to the pinnacle of national recognition among the foremost conservation agencies in the land.

So—to you "Bob" Deiter, the entire Fish Commission family joins the ANGLER in this most fitting salute and sincere best wish for your health and happiness in the years ahead.

Pennsylvania Fish Commission Elects New Officers for '53

At the annual meeting of The Pennsylvania Fish Commission, held at the State Capitol, July 1, 1953, Paul F. Bittenbender of Wilkes-Barre was elected President and Louis Winner, Lock Haven elected Vice President. The new President succeeds Bernard Horne of Pittsburgh.

C. A. French was retained as Executive Director of the Commission.

Fish Commission Bans Motor Boats In Waters Created For Public Fishing

The Pennsylvania Fish Commission banned the use of motor boats on any of the waters created for public fishing by the Commission except only in instances where the motor boats are used in the course of official duties. Bathing is also prohibited.

At the request of the Zelienople Harmony Sportsmen's Club, the large lake under their control is to be kept open the year 'round, subject to the rules and regulations governing fishing in the inland waters. During 1953, the size limit on bass caught in this lake will be twelve (12) inches and the creel limit four (4) per day.

Crooked Creek in Erie County, has been set up as a nursery area by the Commission for experimental work with rainbow trout.

TROUT FISHING IN PENNA.

(From page 23)

sects in the baby stage and any other debris which might serve for food. The second position is that of midwater, where a trout will be feeding on minnows and other freely floating food. Surface feeding

is done on insects as they emerge from the water and as they settle back down again.

Solunar Tables, written by a John Alden Knight of Williamsport, Pa., sets up four times each twenty-four hour period in which trout are supposed to bite. Actually, the best times to catch a feeding fish are in the early morning and late evening, when no bright light illuminates the surface of the water. A trout has three moods, of which he may be caught in two of them. The first is when he is in a feeding frenzy and will strike nearly anything that moves near him; the second is that of feeding, but of a cautious nature in which the successful angler will present exactly what he is feeding on. The third is when the trout is frightened or just not having any and no bit of enticing will get him to bite.

TACKLE—The Fly Rod

The fly rod may be described as a long rod, between six and ten feet in length and made of tubular metal, spun glass, or bamboo. It has a willowy action like a whip and uses nearly that same principle that is embodied in the whip. It uses the weight of the line to cast out lures of practically no weight at all. The line is of a heavy nature, of braided nylon or silk. The reel is just a place to store line in this type of fishing and may be an extremely simple mechanism or may be the type known as automatic in which the line is taken up automatically at the touch of a button. The leader is a piece of nylon or silk gut from a few feet long to perhaps twenty feet; its purpose being to give a detached aspect to the lure. A noted local angler says this of fly fishing: "Of all types of angling possible for trout the one that gives the most people the most satisfaction is that of use of the fly rod, whether for lure fishing or bait."

Many types of natural and artificial baits are offered not only by the commercial producer but by nature itself that may be used on the fly rod. First to be considered, of course, is the old standby, the worm. Worms range in size from the tiny two inch to the night crawler that may reach a foot in length. Acceptability requirements for a worm are small, the important one being that it must show some life when cast into the water. The "cast" of the bait fisherman, whether he be using worms or other offerings is a sort of swing, rather than the cast of the fly fisherman, to be described later.

One authority feels that the red-tipped or black-tipped type of worms is best, generally and that large worms can be used in large bodies of water where larger fish are expected to be present and small worms in small streams, while another

makes the suggestion that, when going on a long trip to your fishing waters, you lay moistened moss on soaking wet burlap, lay your worms on top of this and roll in a ball and place on the front fender of your car. When you reach the fishing site the worms will be lively as "young snakes."

Minnow fishing is another popular type to be done with the fly rod and a more detailed explanation will be found below.

There are three types of flies (major); May, caddis and stone fly, all types of insects that spend most of their life on the bottom of bodies of waters, flying from the surface only to lay their eggs so that their kind can survive. Trout feed on all types of these flies at all times, this being their chief form of subsistence. The angler can use either the naturals or the imitations made of wool, feather and miscellaneous other materials of all colors of the rainbow, attached to the hook by means of string. These imitations are sometimes thought to be better than the naturals and may be cast much more easily than the naturals, as they have a tendency to tear from the hook.

The method of fly casting is very difficult to explain and much simpler to learn through experience. Only a few factors though, according to the masters, enter into the question. As stated before the line must be brought into play so that its weight is used to force the light fly out onto the water. There are three main strokes to the cast. It begins with the line stretched in front of the angler and the rod also in front, pointing upward at about a forty-five degree angle. Then follows an exceedingly strong upward and backward motion designed to draw the line backward over the caster's head. Allow the line to straighten out and then another strong thrust forward. At first casts should be short, not over twenty feet, with emphasis on accuracy and laying the fly down naturally. The sharpness of the strokes can hardly be overemphasized. It is this one element that can make or break ones fishing with flies.

There are certain patterns for flies which are designed to imitate the naturals. Here again, experience is the best teacher. Here are the names of the patterns which have proved their worth year after year: Ginger Quill, Grey hackle, black gnat, in both wet and dry. The terms "wet" and "dry" refer to whether a fly sinks or floats on the surface. Other good flies are (wet): Professor, Royal coachman, alder, Wickham's fancy, March brown, Stone fly, Little black caddis, Governor, black Quill, Gold Ribbed hare's ear. Dry: Fanwing Royal Coachman, gray spider, Badger bivisible, brown bivisible, march brown, Quill Gordon, and Light Cahill.

Spinning

The art of spinning is relatively new on the angling scene, but is becoming extremely popular. Have you ever turned a spool of thread sideways and pulled on the end? Notice how easily it pays out? This is the exact mechanism of the spinning reel with machinery to wind the line on the spool again. The line used is very fine so that no leader is necessary.

Rods come in a variety of sizes, generally shorter than the fly rod; five to eight feet in length. Beginners find that this type of angling is the simplest to master and the easiest method of taking fish. It is found that any lure or bait with any weight at all can be cast twenty and thirty yards, thus making it possible to fish the most inaccessible spots of any body of water.

As stated before, spinning is new; but only in this country. It has been used in England and France for years and it is rumored that Marco Polo was taught to use this outfit while visiting in China. Chinese to this day use a rig that is similar.

Many lures are now on the market that may be cast with a spinning rod. These

take the form of minnows or other aquatic life and usually have some sort of spinner attached.

Accessories

Many are the helps offered for fishing and only a few necessary items will be listed. The primary requirement is to have a vehicle in which to carry your various paraphernalia. Creels and vests of many sizes and shapes are offered, all being good, according to the individuals requirements.

In the western states many anglers use boats to fish the larger streams, but here in Pennsylvania, hip boots or waders that reach to just below the armpits are practical. Warning: Care must always be taken when wading so that one does not slip, fall in and ruin the entire days fishing.

Some fishing companions feel that a landing net is another requirement but it will be found that it is more sporting to attempt to land a fish without one, plus not having the extra weights to drag along.

If bait fishing, a light weight and efficient bait container must be carried. This means efficient in the sense of the word that if using worms, it must be cool, as worms cannot stand the heat; if using minnows or other aquatic baits the can or container must hold an ample supply of fresh water so that the bait does not suffocate.

The traditional fishing hat is a must and may be of whatever design the angler deems necessary. If fishing waters where small insect life will be prevalent, it is a good idea to take along an insect repellent of a good reputation.

It is always a good idea to take along an ample supply of hooks, if bait fishing, and extra flies or lures.

Technique

The art of presenting lures or bait must be, generally, learned through experience by the individual. The types of presentation may be divided into two categories: The natural drift and the "drag." Either type of cast may be used in either bait or lure fishing.

When using the natural drift method, the angler casts upstream and allows the lure or bait to drift as naturally as possible. The drag is to use a pull against the current. The bait will not look as natural, but in some cases will be a better fish producer.

The angler must also find at what level the fish are feeding, and by using weight or the drag against the current to attain that level. Generally, wading upstream will produce better results than the more used method of downstream fishing. Some reasons for this are:

"First: The trout are headed upstream; therefore your fly tends to come back to your fish rather than away from him.

"Second: The fish are not likely to see you so readily if you approach them from the rear.

"Third: Any gravel or dirt that is loosened by your boots while wading registers no danger in upstream waters.

"Fourth: When starting to fish a stream, one usually is at the meadow lands, roads, or bridge at the bottom of the stream. Starting to fish early and at once is advisable.

"Fifth: When you are tired it's a wee bit easier walking home downhill than in the reverse direction. 'And remember,' as the Warden says, 'You have a heavy creel of fish to carry at the end of the trip that makes downhill doubly attractive.'"

One thought can be your guide when it comes to choosing the size of your lure or bait. Generally, big trout feed on large things, as they cannot derive enough energy from small things.

As to minnow fishing for trout, Kenny Sands, a well known and honored fisherman of Columbia County, has this to say:

"This type of angling involves more work than do other methods but the size of fish caught and the battle these larger trout give, more than compensates for the labor." Any type of small fish may be used, the size best being between two and a half and four inches. It should be presented in as natural a manner as possible.

Once the trout is hooked the fun begins. One author feels that the line should be left slack after the hook has been set so the fish will not become excited and head for obstructions where he could pull the hook from his mouth. Others claim that it would be sheer folly and that a steady, direct pull should be exerted at all times on the hooked fish. Which ever method is used one should always play the fish until exhausted so that, when landing the trout, it does not give one last flip and break the line at the crucial moment.

Artificial Propagation

Due to the pressure applied by so many fishermen to so few bodies of waters in the last few years, it has become necessary to offer artificial means of placing trout in the streams. Here is the method used in Pennsylvania.

Large trout are kept in special pools, in what is called a hatchery, for the express purpose of extracting their eggs and milt. Once these eggs hatch, the tiny fish are allowed to grow and mature in other special pools. Once they reach a size where they will be able to live in natural surroundings, they are loaded in special tank trucks and transported to various suitable streams throughout the state.

Conservation

Anglers are seeking to eliminate certain factors which contribute to a scarcity of trout.

Various natural enemies warred upon: The fish-eating birds, and snakes, snapping turtles and polluted water. But the greatest enemy of all is mankind himself. The fish hog. This is the individual who stays within the law, but keeps every legal sized fish he catches, up to the creel limit.

Luckily there is a movement in the last few years towards a more sportsman-like approach. After the trout are caught, it is recognized, most of the fun is over, because if one wants fish he has only to go to the fish market. So now, more and more, fish are being returned so that they may fight again another day.

Here is what a nationally known outdoors writer says of this fad. "The best to be said for releasing fish is that the angler loses almost nothing by it. He's had the kicks of rising, hooking, playing and landing him. If he then kills him, the value of one fish to the angling world is lost. If the fish is released, unharmed, another fisherman can take him again with another full measure of fun. This is bonus fishing and we need a lot of it."

In closing, this one statement just about sums up trout fishing in Pennsylvania. "Looking back, I feel that I have met some nice trout. They are a gentlemanly fish. The Brook trout is like a dull but pleasant fellow. The Brown trout is a cagy old country squire, hard to outsmart. The Rainbow is a fencer and an aristocratic duelist. They're almost nicer than people."



"Sure, sure . . . it does everything you say it does . . . But the fish can't catch up with it!"

ART OF PLUG MAKING

(From page 4)

benefit of the angler who casts them and doing pretty good at the business, too, do not call these lures plugs or even "lures." Instead, when they and their partners in this artificial lure making business speak of a piece of painted and varnished wood, plastic or metal they have decorated with all the shiny new things that go into this business of lure making, they call it a "bait." That is one of the true badges of a professional lure maker I have observed. They speak of "baits" and bait men and bait makers and bait peddlers as frequently—even more so—than they ever do of a lure or an artificial offering.

It is mostly the novice at this line of fishing creations who speaks of a "lure" or an artificial creation of any kind.

I was talking with a young "bait" manufacturer not too long since and we were discussing the subject of good artificial lures and plugs. He was humorously frank about the reason why he spoke of himself as a "bait-man" and of his salesmen as "bait-peddlers." "You see it was my grandfather who started the company that we are now operating on a full time basis and producing one of the leading brands of artificials. That was pretty far back, sometime in the early 1900's—I think perhaps it was in 1920, if I am not mistaken! He and three other men in the town where we have the factory formed a partnership and decided to manufacture some of the crazy ideas my grandfather had about this fishing sport. Everyone in our state, at that time, thought my grandfather was a sort of ne'r-do-well who would spend his time out along one of the lakes or rivers around us rather than turn his hand at some other chore."

This lure manufacturer I am speaking of was no relation, understand, of the inventive genius that was mentioned in the opening paragraphs of this article. But he was the grandson of one of the pioneer artificial lure makers of our country who made a huge success out of pioneering a mighty fine and successful fishing lure and a series of similarly good descendants of the first models that he brought out.

"It was through an interest my grandfather had in the outdoors he was able to pick up the idea for the fine lures we are now making. There have been considerable changes in some of our line of fishing products, to be sure, and we have made some radical departures in the old factory where the lures first were turned out. But, basically, artificial lure making is still a sort of whittling job!" my friend smiled.

I disagree with him a bit on this.

Modern lure and plug manufacturing is not greatly similar to the old methods of slowly and painstakingly shaping up these fish alluring minnows, frogs, crustaceans and beetles that most of the major firms, that devote their activities to this branch of industry, are now producing.

To go through one of the ultra modern factories, like the James Heddon's Sons plant at Dowagiac, Michigan; the Creek Chub Bait Company of Garrett, Indiana, the Fred Arbogast & Company, of Akron, Ohio, the Pfluegers also of Akron, and others that I might mention if I had more space to devote to such a listing, is to observe the genuine science that goes into the construction and completion of this popular form of fishing allure—the artificial minnow, the plug and some of the metal inducements that are produced also from such factories, along with the plug and artificial minnow types of artificial lure.

The smoothest of smooth working machines turn out lures by the hundreds in a single days time. I can not say definitely just what a full days production is from any one of these factories. But I can say that the amount of lures that pass along through those busy aisles and sections in the large, airy and well lighted workrooms where this work is performed is amazing.

Starting with the very beginning of the lures construction one generally finds himself being faced with a large and rather awesome-looking furnace where the plastic and the metal-bodied plugs spinners and minnows evolve from an intense heat.

If it is a factory where the majority of the lures are wood-bodied ones then the beginning of a trip through the processing rooms and departments will probably start in a large room filled with the whirring beat of sandpaper wheels that shape the bodies of the wooden plugs and minnows. These are called the wood lathe workrooms and out of the dust and turmoil of

their depths comes wooden trays and boxes heaped with the clean glowing shapes of the plugs and minnows sanded and smoothed for their next trip, to the paint-room, where a staff of girls and men armed with air brushes, air guns and air compressors, along with gallon jars of lacquers and colors sit before a well ventilated back-stop. Here the lures are placed on what, in the baitmakers terminology, is called "sticks." This process of painting the plug and minnow has changed recently I am told by some of my reliable friends in the industry and where there once was a considerable staff of perhaps half a dozen to a dozen expert painting artists, as the trade classes these particular workers, there is now not over one or two who work at this important job, for a new system is in operation that is being kept pretty well hush-hushed by the firms that have installed this faster program of painting baits. There are many places in the modern lure factory like special departments, where visitors are not supposed to have too intimate a view of what happens. These are confidential matters, as might be expected. However, in most lure making shops the older style of tinting and decorating the lure to as nearly as possible copy the creatures it should represent, for the entertainment of the finny adversaries when an angler takes them forth on lake and stream in the tackle box, goes on about as usual. Approximately 15 coats of paint and lacquer goes on each wooden or plastic lure, shot deftly over the lure with light touches from the air or paint gun operators skilled hands so as to give the baits unbelievable natural appearances.

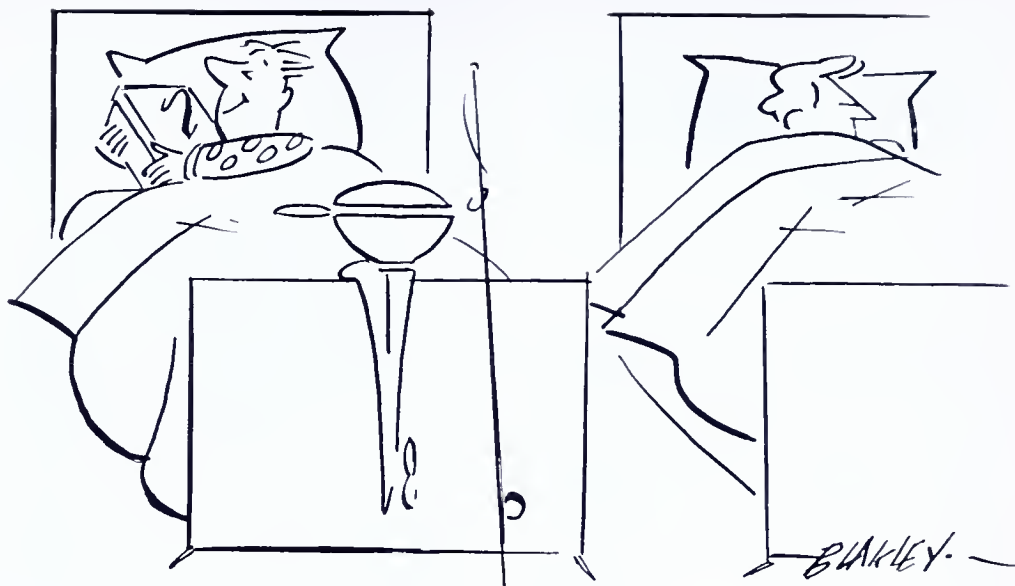
The general tone of color for each pattern of bait is first applied and then delicate shades, markings and spots are touched to the minnow or the frog or crustacea translations. It is nearly unbelievable that such artistry can be wrought by a well coordinated force of artists in the paint rooms. A jet like needle of mist shot from a deftly and quickly poised paint pistol brings out iridescent colors and bars of a perch finish. A second artist then takes the lure and holds a metal screen where the paint mist will transfer to the lure a beautiful scale finish, immediately washing off the screen for another application in a batch of acetone. The eyes are often painted on by using small metal mats with circular holes and discs for the artist to aim the shot of colors. These painted eyes are principally used for metal and spinning

lures, while for larger ones where eyes are deemed necessary, glass eyes, that come in pairs, wired together, as matched and life-like decorations are set in the minnows head section at the next step in these operations—which is the assembly room section, where the finishing touches for each lure are performed.

The glass eyes are a very particular phase of this precision work that follows the lure all the way from its birth in the woodworking shop or the moulding section to its final and finished arrival at the packaging or boxing room. Electrically operated drills whirr out sockets for the eyes. These have to be of an exact diameter so that the glass optics fit firmly. A dab of vermilion paint is shot into the hole where the eye fits, a touch of cement and a bone hammer delicately used taps the eye into place. To shatter an eye means to loose a lure, for they can not be removed easily once set. There are few remodeling jobs done in a good factory. If the lure has some defect it is ruthlessly rejected by the inspectors. If there is only a minor fault it can be remedied by an expert at this part of the business. The best glass eyes I am told come from the eastern seaboard states and are superior in every way to the foreign made eyes.

In the assembly rooms wide, airy and well lighted concourses girls and women take over the assembling of the metal parts. In some factories men do the more intricate jobs of moulding metal headpieces, in small electric furnaces, bending eyes to long lag screws, etc. But generally a sharp eyed girl or an experienced woman worker quickly assembles such parts as the metal headpieces, the hook swivels, grommets, the sharp, needle tipped treble, double and single hooks. Small drill presses and screw drivers are operated by miniature machines powered from a central unit. A keen eyed expert will finish her part of an assembly so swiftly that the eye is almost frustrated to follow each movement.

A hole is drilled for a treble hook to be placed by a flip of the operators finger on a switch and a touch of the lure to the buzzing needle like drill, a screw is then turned into the hole and a grommet set for the hook to rest on, the hook eye engaged and a small set of steel fingers, operated automatically, seizes the straight shaft of the screw and turns an eye in it so smoothly and true as to cause the observer to rub his eyes and wonder



if miracles in this mechanical age will never cease!

Finally the completed lure arrives at a part of the factory where the inspectors go over the wooden trays of bright, satiny smooth and lustrous products with the expert scrutiny of a well versed fisherman. Only good fishermen can gauge a good lure and even this part of the modern bait factories system is carried out to completion in some of the plants by actually testing the lures when they are finished in a tank of clean, flowing water with a miniature casting rod and reel. Then a young lady deftly tucks the celluloid and acetone perfumed product of all this routine of making a fishing plug, artificial minnow or spinning metal lure into its gay and attractive cardboard box and these in turn go into other cartons and are hustled off to the shipping and stock rooms.

One leaves the factory with the nostalgic aroma of acetone deeply imbedded in his senses and, thereafter, when a new lure—I insist on calling them "Lures"—is removed from its box on the banks of a rippling stream or on the smiling surface of a good pike, muskie or bass lake, and one catches that faint, but characteristic odor of its clean, inviting workmanship, the recollections of how these things are "whittled" out swims back to give the fishing trip even more charm and interest. For there's something then about a modern lure that one feels is more intimate and personal than before, after seeing the manner in which it is created, from a plain blank of wood or a small mass of plastic or molten metal to the delightful patterns of a lively little creature diving, shimmying and spinning that looks to the fish like some genuine

and familiar item of food and forage it wishes to capture for food, perhaps! I disagree with my bait making friend, however, when he casually assures me that making lures is just a whittling job. It's much more than that. It is really a piece of high industrial science and planning!

IZAACK WALTON AND HIS FRIENDS

(From page 3)

went to their houses, either (=each) of them taking his pick stafe (=pike staff) in their hands, mett in a felde behind Mr. Edward Barkham's house, comonly cauld (=called) or knowne by the name of Baldwin's; theare they two fought till John Nelham receyved a wound by John Whiston in his throtte, fell doone dead, and never spake a word after; so the coroner, upon the Saturdaie next, sate upon him; was buried the same daie, being the 10 of Nov. 1610."

Colsterworth Road was built on the field where this duel was fought. The famous old "Swan Inn," stands at the corner of Philip Lane, nearly opposite High Cross, Tottenham. In 1900, the "Swan" became the property of Messrs. Taylor, Walker and Co., Ltd., and the house has remained substantially unaltered since that date, although there is little left in the present building of the inn as it was visited by Walton and his companions.

(There is an unusual link between the present owners of the "Swan" and Pennsylvania. The brewery company,

Messrs. Taylor, Walker and Co., Ltd., operate at Limehouse, Stepney, and part of their premises formed the brewhouse owned by the Hare family, who commenced brewing early in the eighteenth century. In 1773, Robert Hare emigrated to Philadelphia, where he founded a brewery, and he was a Framer of the first Constitution, a Member of the Assembly in 1791, and Speaker of the Senate of Pennsylvania from 1796 to 1800. He was one of the original organizers of the First Troop Philadelphia City Cavalry, and a trustee of the University of Pennsylvania from 1789 to 1805. He died 8th March 1811, at Germantown, Penna., and is buried in Christ Church Burial Ground.)

ALL-AMERICAN BEAUTY

(From page 9)

black bass is at present regarded by the angling fraternity . . ."

How true! If we depended nowadays for our trout fishing on brook trout, we'd all perforce be bass fishermen. But what the good doctor overlooked was the coming of the brown trout and above all, the coming of its prophets, Halford in England and LaBranche in this country. To be sure, the brown trout had been stocked here as long ago as the early 1880s, but according to the old-timers, it was not until around 1912 that they became sufficiently numerous to merit angling attention; and it was not until the 1920s that Americans began learning how to catch them.

Beginning in the 1880s Halford had written about the dry fly, and as time went on he became more dogmatic, more intolerant, more formalistic and more complicated until finally he made a religion of his particular brand of chalk-stream fishing and invented the purist. In 1915 LaBranche brought out his monumental *The Dry Fly and Fast Water* and created what is still the American school of dry-fly fishing. He was not a purist in Halford's sense but he was in his own and in tone if not in word he extolled the man who "plays the game according to the rules and takes them dry or not at all."

Glamour! Halford the Britisher, high priest of the sacred Houghton Club on the Test. LaBranche the New York stockbroker who lived part of the time

in England and was intimate with the whole sporting set. Over here it was an era of Anglophilia—English worship; of international marriages, of Americans knocking white balls around cow pastures with clubs, religiously wearing red coats because the British did (the great American bull settled *that* custom), of galloping through games of mounted shinny because it was polo and British, of organizing hunts and riding to hounds in "pinks." What price the honest, buxom, All-American Beauty now? Hurrah for the fast, skinny Glamour Girl trout!

Of course there are still people who will tell you that the bass is a better game fish than the trout ever thought of being, that size for size it will outfight, outpull and outwit any trout that ever swam, that it is more wary than a trout, harder to take on the same tackle and three times oftener able to beat the angler in a fair fight; and that most anglers don't flyfish for bass because they're not good enough to do it.

They could be right, too.

SPINNING FOR BASS

(From page 11)

you. Keep a bend in the rod at all times, for if the bass gets you with the rod pointed at him, he'll break that line easily . . . even one testing eight or ten pounds if he is big! Play him out well before venturing forth with the net . . . and have more fun than you ever had with other tackle. The battle will last longer and will be more spectacular. Mr. Bass can perform with a lighter lure to lug around in his jaw . . . and you'll also find that he'll take the smaller lure further into his mouth and so become easier snagged. (Which reminds us that a short wire leader ahead of the lure is necessary with the lure attached to it of course with a snap swivel to keep it from spinning and twisting the line.) There are transparent fins to use with lures and spoons that tend to twist the line. If the line does become twisted, remove the lure and trail the line behind the boat or hang the lower portion of it from a high building overnight to twist and untwist . . .

Bass fishing with spinning tackle is not confined to artificial lures by a

long shot. Live bait and worm or crawfish can be cast further without weight, when the occasion demands. Yes, you can heave a nightcrawler as far as you like, for it weighs as much or more than the lighter spinning lures. Make the cast with a swing rather than a snap and you'll never flip off a properly hooked minnow or crawfish. You can readily see that you can work further away from the shore with less risk of scaring feeding bass.

If weight is desired for any reason, it is best to attach two or more split shot a foot apart above the lure with a swivel at both ends to guard against twist. This will also help in keeping the rig from fouling up on the cast and doubling or hairpinning back on itself. In most cases, when a single weight is desired, it is best to attach it at the end of the line with a lighter pound test than the running line so if it gets snagged, you only lose the lead. In this case the lure is attached to a tippet. This is the proper rig for wet flies or when you fish a couple of streamers at the same time . . . a killing combination by the way in stream fishing for smallmouths.

The use of the plastic bubble is the God send for both bait and fly fishing, when it is desired to fish on or near the surface. The bubble can be weighted by the addition of water . . . attached to the end of the line with the flies on tippets. Some anglers reverse the order and put the bubble ahead of the flies, but this makes for awkward casting and also interrupts the hit of the fish as well as slowing up the action when you strike.

In bass bug fishing, the bubble is not necessary, but in the case of the extremely light bug, add one or two tiny split shot ahead of it . . . not enough to sink it, but enough to add sufficient casting weight. Even without weight added, a limber rod with very light line will handle a bug as far as the usual fly rod, with more ease, less line slap on the water. In this case, spinning allows you to get closer to the fish and to offer scare-free delivery of the bug. There is no fly line to tangle in the darkness or foul up on the equipment on the boat. There is no necessity for standing up to cast or for jerking the boat causing waves that will tend to put the fish on the alert. The spin caster can make five casts to the fly man's one . . . and quieter too!

Yes, given good tackle that is set for the fishing business at hand, I think you'll find that it is the sportiest

and easiest method of outwitting old *Micropterus* that'll come along in many a moon, and this applies to trolling, lake fishing and stream work.

PORK CHUNK FOR BASS

(From page 13)

pounds or over. This sold me completely on chunk fishing. Since then I have used pork chunk almost to the exclusion of all other surface lures, and in two years of bass fishing it has drawn few blanks.

The biggest problem in using pork rind as a top water lure is keeping it on the surface. Pork sinks quickly when allowed to rest on the water, so the secret is to keep the chunk in constant motion.

As soon as the cast is completed the retrieve must be started immediately. Then by fast reeling, the pork chunk will come skipping and skittering across the water's top. The easiest way of accomplishing this is to start to retrieve a second or two before the chunk hits the water. In this way it will already be in motion when it reaches the surface. You will quickly discover the correct reeling speed to keep the pork chunk just struggling on the surface without sinking. During this whole process the rod should be held at about a sixty degree angle to facilitate striking and retrieving. The longer the cast the higher the rod should be held. This whole technique can be mastered quite easily with a few minutes' practice.

To illustrate how simple it is to become adept with this lure, let me cite the following experience:

I took a friend to a local bass pond to do a little spinning. Don had never used a spinning outfit before and had never been too successful in his plug-casting attempts. In half an hour he was casting passably and working the pork chunk with the ease of an accomplished angler. I then led him to a shallow, weed-filled cove at the upper end of the pond, left him on his own, and made my way to a similar cove on the other side of the pond. Two hours later I returned and found Don beside himself with joy. From the time I had left him until my return, he had had a three-ring circus, hooking twelve or fourteen bass and landing five of them. One of these was just

shy of three pounds and represented the largest bass he had ever caught.

It is important to keep your hook needle-sharp at all times when fishing pork chunk. However, a great many strikes will still be missed regardless of how sharp the hook is. Many times the frog is taken so quickly that there is no awareness of striking. Other times the bass will just nip the tail of the pork frog. Therefore, it is good practice to strike hard on the initial run of the fish in order to set the hook well. Most of the spinning rods on the market today are very supple in action without too much backbone, making it all the more necessary to strike hard. Many fish will be missed using this lure, but so many more will be hooked that the fish lost will be of little consequence.

Pork chunk has a decided advantage over regular surface plugs because of its natural taste and softness. A wooden plug, taken by a bass, is immediately rejected as a fraud, while the pork is held onto by the fish, giving the angler all the time in the world to strike.

A note of interest is the manner in which bass take this lure. It seems to vary from trip to trip. On some occasions they will barely dimple the surface, taking the frog very quietly, much in the manner of a big brown trout taking a dry fly. On other occasions they will rush it savagely, hitting it with a jolt. Many times they seem to be actually lying in wait to grab it the instant it hits the water. More than once I've had bass hit the pork chunk, miss it, and then come right back and hit it again, a thing virtually unheard of when one is using regular surface plugs. I've watched bass cruising leisurely along, and, because of poor casting, put the pork chunk in back of them instead of in their path. Every time they have turned and grabbed the frog with a rush.

One thing seems to hold true all the time despite the manner in which the frog is actually taken. Bass will hit the pork frogs without the slightest hesitation. This differs greatly from regular surface-plug fishing procedure, wherein the plug is allowed to rest for a minute or two and then is twitched gently, more or less teasing the fish into striking. This, of course, is impossible with pork rind because it must be kept in constant motion to prevent its sinking, and yet it has been my experience that three out of four bass will hit the skittering and fast-moving frog without the least coaxing.

LOSE A HOOK SPARE A BASS!

Pork-chunk fishing is generally restricted to certain areas in the water being fished. As a rule depths over six feet will not produce good results. The locations that should be fished carefully are the lily-pad fields and the shallow weed-choked bays found in nearly every lake or pond. These locations are the natural foraging grounds for hungry bass and will usually produce the best results. In water where there is not much cover of this kind, fish the shallow edges where the bass forage for minnows. On several occasions I have done this and taken bass from water no more than six inches deep. The secret here is to fish from land, making long casts parallel to the shore and retrieving the frog three or four feet from the water's edge. In this type of fishing, the longer the casts the better, since bass are wary about feeding in shallow water with no cover in which to hide.

Another trick, one which many anglers have discovered by accident, is to cast right up on shore or on rocks bordering the water's edge, then simply flip the pork frog back into the water. This also works very well in lily-pad fields. Here you endeavor to cast the frog onto a lily-pad. Then the same procedure described above is followed. If there is a bass anywhere in the vicinity he will usually take the frog with a rush.

Most of the natural feeding grounds of bass are in places where to use the pork frog on a normal hook would mean being caught on snags every other cast. This calls for the use of good weedless hooks. Regular hooks with weed guards attached can be purchased at almost any tackle shop. A weedless hook will allow the pork chunk to crawl over pads, slither through weeds, and climb over similar obstructions without getting hung up.

Pork chunk is primarily a large-mouth bass lure, but at times it can be used for smallmouths with good results. Fishing it across the riffles in a stream will oftentimes bring a savage strike from a foraging smallmouth. Pickerel, too, seem to relish this lure.

Often they will hit it so hard and so savagely, they will miss it entirely. This doesn't bother them particularly, for on many occasions they will hit again and again until they are hooked or get too close to the angler and become frightened.

A fact that should warrant the immediate attention of anglers is the price of pork chunk. Regular surface plugs run from seventy-five cents to a dollar and a half apiece. A dollar will buy enough pork chunk to last an entire season. Chunk is sold commercially under a variety of titles such as "pork rind frogs," "pollywoggers" and other appropriate names. A bottle generally holds five or six chunks and costs around fifty cents; cheap enough when compared to conventional surface plugs.

Perhaps the most amazing thing about pork frogs is the fact that so few people recognize their worth as a surface lure. I have read very few articles about their use, and in my years of fishing have never run across anyone using them. Of course, before the age of spinning, they could not be handled properly with any type rod, except a bait-casting rod over six feet, but pork chunk can be handled easily with a spinning rod.

With the ever-growing popularity of spinning, I feel pork chunk will soon be recognized for its real worth as a top-ranking surface lure. In any event, you fellows who are now owners of spinning rods and like to take your bass on the surface, be sure and obtain a bottle of pork rind frogs. Give them a fair trial and see if you aren't pleasantly surprised and firmly convinced of their value as a really great surface lure.

BAIT FISHING FOR BASS

(From page 15)

outing is the shore dinner, prepared on a small fire built of drift wood found on the shoreline. Freshly caught bass are fried. With potatoes, coffee and toast, it is a meal never to be forgotten!

Lake Fishing

Lake fishing is similar to big river fishing, that is, many anglers prefer to wade waist deep along the rocky shoreline, casting baits far out into the lake. Others prefer boat fishing. With a slight breeze blowing, many cross the

lake and drift with the wind, trolling a baited line behind the slow moving boat. Very often other fish—walleyes, pike and panfish—in addition to the bass are caught via this method.

Largemouths prefer the muddy bottom portions of the lake where thick beds of weeds and lily pads grow. Smallmouths prefer fast waters, the rocky ledges, sandy and gravel portions. Concentrate your smallmouth fishing at such locations.

Bait fishing in all three kinds of water—creeks, big rivers and lakes—requires only ordinary tackle. Baits can be cast into quiet pools, or trolled behind slowly drifting boats with standard fly, bait casting or spinning rods or with long bamboo poles. Probably the one necessary item is a long thin leader (seldom larger than 4- or 6-pound) to make the connection between bait and line as inconspicuous as possible. It may be necessary at times to use a small quill float to prevent such baits as hellgrammites and catfish from crawling about the stream bottom and hiding under rocks.

Bait fishing for bass along the streams of Pennsylvania holds a great deal of enjoyment for anglers. Indeed, those who have minimized this method of fishing in favor of spoons and plugs have missed a great deal of fun. With plenty of bait available on the stream bank, only your rod and reel are necessary for a bass fishing outing and some of the finest days astream will be experienced!

HIGH JINKS WITH HELLGRAMMITES

(From page 21)

you. Do it another way and you'll learn first hand how those pincers work. Draw the body across the blade of a small scissors or nail clipper (which you should carry for the purpose) until you reach the tail hooks. As soon as it grabs the blade—snip—you're in business.

Be very careful to clip off only the hooks, or claws. Do not cut into flesh, or again you'll have dead or badly injured bait.

After all that effort—the seining, snipping, etc.—you deserve some action. Stick to tails of riffles, to start, and you'll have it. Make your cast so that the bait will drift naturally into the pool or pocket below the riffle.

Be careful to start the drift far enough upstream so that it will be thumping bottom when it reaches the pay-off area.

When working glides and other smooth water sections of streams, omit the sinker altogether. Fish as lazily as you can, allowing the hellgrammite to settle and drift as it will. Four days out of five, you'll promote more action with a natural drift. But if business is too slow on the fifth day, give it a twitch now and then. I've seen it work on many a trip.

Hellgrammites—or devil-divers, hell-divers, hoejacks, conption bugs, grampuses, or snake doctors—are generally prescribed for bass fishermen. But the truth is that other species are even more susceptible. Take the channel cat, for instance.

At dusk, some evening, stake a claim near the tail of a riffle. Spend the short period before dark getting acquainted with the water. After that, start drifting your grampus into the likely spots you had located previously in the waning light. You'll be taking potluck, sure enough, but if it's a typical night when channel cats come onto the riffle to forage, you'll keep mighty busy.

Many an old residenter brown has succumbed to a hellgrammite artfully drifted past his hang-out. One brownie I know watched a fortune in bivisibles, fanwings, and streamers wash past his nose over a period of four years. He revealed not the slightest display of interest. Grasshoppers and worms were no more appealing. But one warm June night Charlie McClellan turned the trick. He didn't exactly discourage the notion publicly that this bragging size four-pounder was taken on an artificial. It took a bit of firewater to uncover the hellgrammite in the story.

Hellgrammites are easy to keep. All you need is a damp, cool, and dark place. The lower tiers of the family refrigerator meet all these specifications. But a word to the wise on refrigerators. Keep the bait container covered, especially if your wife has prepared salads for a bridge party and has stored these, too, in the refrigerator.

Imagine the looks on the faces of her guests as they discover a couple of Dobsons nestled cozily in the tossed salad. That's how that fellow we mentioned, back in the beginning, swung his divorce.

Now there's nothing but beer and salami in the refrigerator. And hell-divers.

WHAT'S NEW IN FISHING BOOKS

By Hugh Johnson

Zane Grey made a fortune as author of adventure-thrillers, starting with the famed *Riders of the Purple Sage* and *The Heritage of the Desert* and continuing down a long list of books which sold in the millions—and still sell.

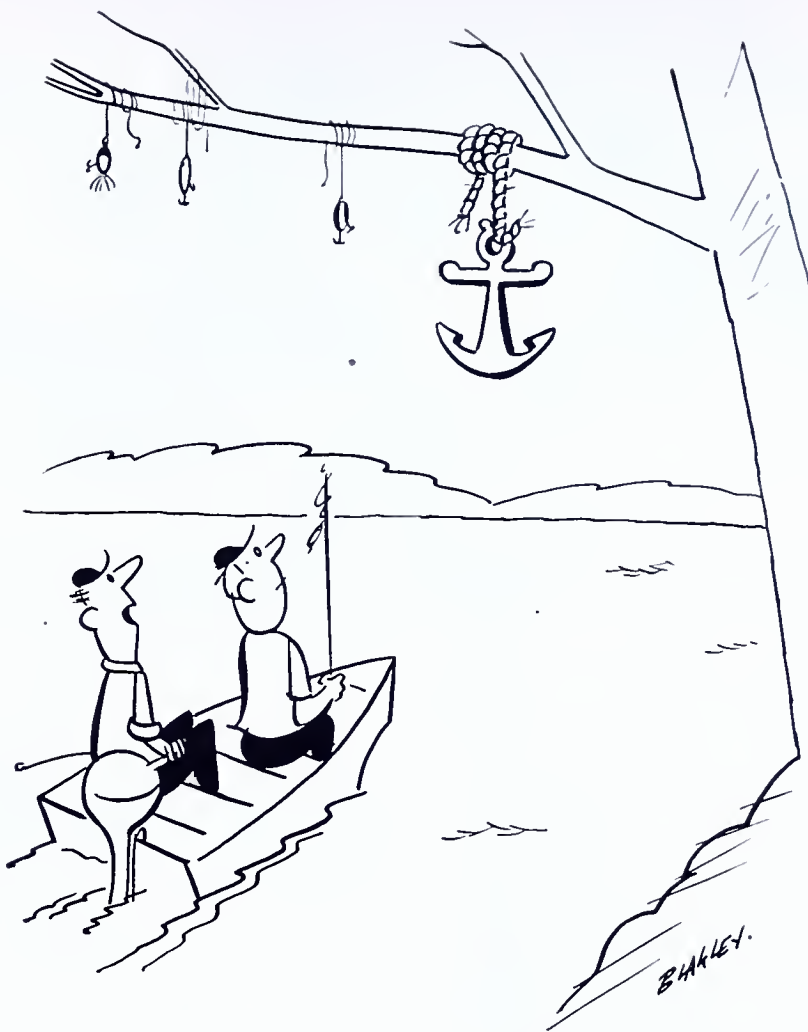
It is what Zane Grey did with his money that particularly interests fishermen. He fished all over the wide world, realizing an ambition that he had cherished since boyhood. Nova Scotia, Catalina, Australia, New Zealand, the Florida Keys, the Rogue River, the Delaware, Tahiti and the nameless isles of the Pacific Ocean—Zane Grey knew more about the game waters of the world than any man alive. And he wrote about his experiences in eight fishing books published from 1919 to 1937, wonderfully entertaining and informative books which gradually went out-of-print.

It is a service to angling literature and to Zane Grey enthusiasts that a book has just been published containing a selection of eighteen of the best stories from those old Zane Grey books. The book is *Zane Grey's Adventures in Fishing* (Harper and Brothers, New York, N. Y., \$5.00). The selection was made, and notes furnished, by Ed Zern. Ed writes a Foreword for the book and an introductory note for each story, which constitute articulate appreciation of the life and works of Zane Grey. The great sportsman-writer died in 1939, and this volume of Zane Grey at his best—in a smartly designed format with good photographs—is a fitting memorial.

* * *

In this strange age of ours with its accent on pictures instead of words, when the best selling magazines are those with the greatest number of pictures, when the pictures flickering across a 21-inch screen in the living room monopolize the attention of young and old in the family, when comic sections get bigger and more colorful and more elaborate, I suppose we might be expected to look with favor upon a book called *Sportsman's Digest of Fishing* by Hal Sharp (Sterling Publishing Co., Inc., New York, N. Y., \$1.50). We should see it, perhaps, as in step with the times, as a short-cut to fishing knowledge.

This is a pocket-sized little book con-



"Somebody hadda bad day!"

taining a collection of the author's cartoon-type drawings with explanatory text which have appeared as a newspaper feature under the caption "Sportsman's Digest." It's pretty thin stuff, totally inadequate either for the beginner who would be much better off with the carefully written, meaty *New Handbook of Freshwater Fishing* by Lee Wulff or *The Boy's Complete Book of Fresh and Salt Water Fishing* by Rodman and Janes, or for the experienced fisherman who wants to get inside the problems of angling and will choose a book by Hewitt or Bergman or Joe Bates instead of a choppy "digest" that skitters across the surface of fishing facts. I like a fishing book that has enough in it to sink your teeth into. "Reading" this one was like biting into a nice red apple only to find that it's made of wax, is hollow, and falls to pieces in your hand.

* * *

I often wonder, in connection with writing about salt water fishing books in this column, how many ANGLER readers do any salt water fishing. Continuing to assume that some do, I invite

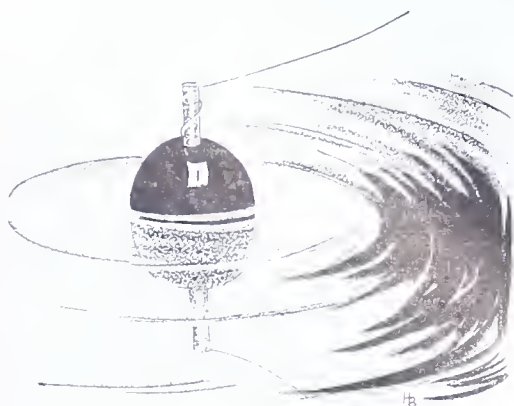
your attention to *Natural Salt Water Fishing Baits* by Vlad Evanoff (A. S. Barnes and Co., New York, N. Y., \$1.75) which is much more palatable to this reviewer than the same author's *Natural Fresh Water Fishing Baits* (reviewed in an earlier issue of the ANGLER). Fishing on the broad expanse of bay and ocean, one is not so conscious of art, of delicacy, of precision as he is on a trout stream or even on a lake. There is more joy in the catch itself than in the method, and there is an elemental rightness in cutting up a squid for bait, or digging the animal out of the conch shell, or casting a live crab into the surf. Mr. Evanoff not only describes the many kinds of natural baits in salt water fishing but goes into the life habits of the bait-fishes, crustaceans, eels, etc., so the reader will learn why and under what conditions a particular bait is better than another. Of special value, also, is the information on methods of preserving natural baits so that they retain their life or life-likeness over the period of a fishing expedition. A good, complete book of its kind.

The Editor's Angle

Once again we begin to hear the phrase—"Fished Out." There are too many fishermen ready to accept this phrase as an answer to a poor day. Even when trout seem few and are more wary, you can still catch some nice ones, but only if *you work for them!*

After the first week or two of the season, nearly all the easy-ones are caught. However, there is so much commotion and splashing around in the streams, that a lot of fish get away and won't "hit" just anything tossed at them. The first thing you should do is to determine just what kind of natural food is in the stream. The way to do this is to search under a *few* stones and trap whatever lives under them with a fine mesh net. Once you determine this factor, get yourself a supply of the bait most preferable or, if you are a fly-fisherman, you can try your imitations. Next you have to get your bait to the fish. Trout hide like most game animals. That means you have to get your bait in the pockets, under banks, etc. There will be many times a hook or two will get "snagged" in the process, but if you want fish and are willing to work for them, that is the best way I know how to go about it. A good way to fish is to use a lighter tippet than the rest of the leader and so when you get "snagged" you just lose a tippet instead of the whole leader.

Remember, don't accept that old excuse—"Fished-out," from anyone—just go ahead fishing in a business-like manner and you will be surprised that with patience how many nice fish you will get when the rest of the fishermen have given up.—Elmer Schorle in the Tomahawk Tedyuscung Sportsmen's Association.



Editor:

I am a subscriber to the PENNSYLVANIA ANGLER and wish to say it's "the greatest!" From time to time I see Pymatuning Lake mentioned so am enclosing a photo of myself with a few nice bass and walleyes caught November 1952 in this ideal lake. I do hope you can find room in THE ANGLER to print this because it is real proof there are big ones there.

JOHNNY YOUNGBLOOD
Jamestown, Pa.

We regret we are unable to reproduce the photo because of technical difficulties but take the Editor's word for it the pix showed a couple of plenty nice bass and walleyes taken at Pymatuning.

Dear Sir:

Enclosed is copy of letter which the Delaware County Field and Stream Association received from Pvt. Dayhoff. It was read to our membership on Monday evening. The group felt that it contains much information so vital to the folks at home, I was instructed to send a copy on to you with the thought it might be published in THE ANGLER.

ROBERT C. YAKE
Corresponding Secretary
East Lansdowne, Pa.

Here's the letter from Pvt. Russell Dayhoff:

I have been a member of the Delaware County Field and Stream Association for approximately two years. I was introduced to the club through George Taylor who is a very active member, and a devoted outdoorsman. Although I haven't had time to become very active myself, I keep posted on your activities through the Club News which my wife sends me every month, and I look forward to the day when I can get into a good prone position on that new small bore range I read about. I am particularly interested in your program for the younger members of our club. I think it is a wonderful thing and you are doing a fine job. When I was a young boy I would have welcomed the chance to join a club like ours, but my hunting and fishing was restricted to shooting rats in a city dump and fishing in vain in a contaminated stream that flows past the factories of Philadelphia. Although I'm only twenty-three years, my few years of outdoor life can see the progress that clubs like ours have made, and where you make the most progress is in the training of tomorrow's hunters and fishermen. Just as our Great Nation is in their hands in the future, so is our wildlife and forests in their hands, and we cannot do enough to teach them the importance

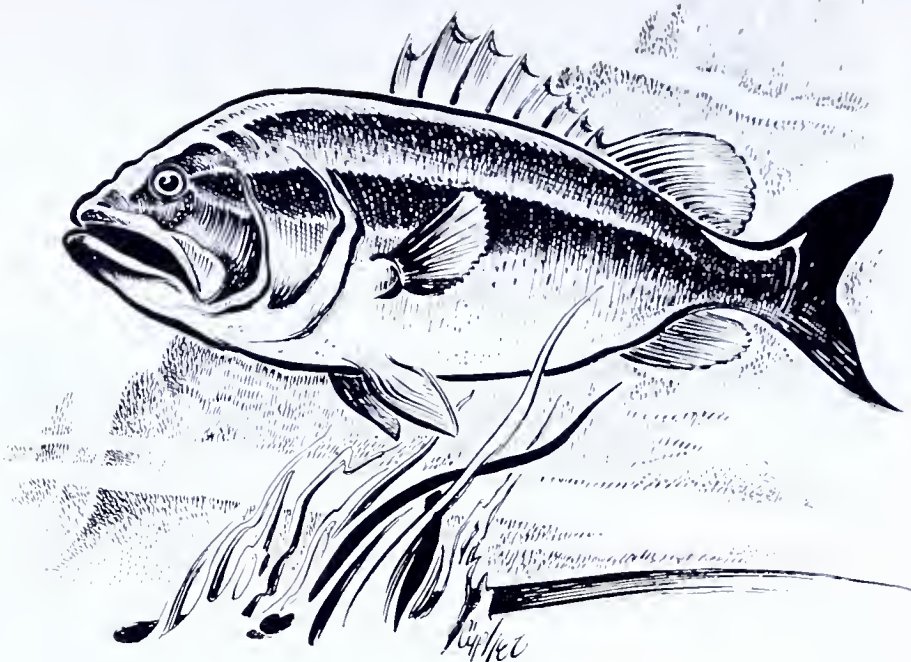


BLUE PIKE, 31-inch, 10¾-pound lunker, is one of largest blues to be taken from Lake Erie. Four-year-old Jess Murdock is shown holding the big fish that was caught in a net last May by his grandad, Harvey Lapp, a part time commercial fisherman for over 30 years. It caused quite a stir among party boat fishermen itching to hook one of this size.

of conservation and being good sportsmen. It'll be a long time before I carry my shotgun in the field, or fish the wonderful streams of America, but my thoughts are there constantly, and as long as I know there are organizations such as ours in existence back home, I don't mind fighting over here in Korea. Please keep up the good work so the future generation can have good sport. I'll do my part to give them a better world to live in.

A sport loving G. I.
PVT. RUSSELL DAYHOFF
Co. B—11th Eng. (s) BN
APO 264—c/o Postmaster
San Francisco, California

The Club ordered 1,000 signs to be printed, some to be distributed along our streams asking for the cooperation of all fishermen to stop throwing trash along the streams and to respect the property of the land owner. Every member can also help this move by talking to fishermen and showing them the wisdom of this. Several farmers have closed their land to fishing because of this condition. It is your sport. . . . Do what you can to preserve it. —Daniel Boone Rod and Gun Club *June Bulletin*.



We certainly hope our readers will seriously consider the cartoon on the back cover of the June *ANGLER*. G. Max Noll, Fish Warden, Pennsylvania Fish Commission writes—"I have just returned from Warriner's Pond, located about 2 miles northeast of Montrose where the bodies of two local fishermen have been recovered. The two men, Robert Becker and Elmer Green, both of Montrose, went fishing Sunday evening, leaving their car by the side of the road leading to the pond. Their absence from work caused a search to be instituted by State Police and when an overturned canoe and a floating cap indicated the men might be in the pond the local fire company and others began dragging for the bodies. The body of Mr. Becker was found in ten feet of water and the body of his companion Mr. Green a few minutes later near that of Mr. Becker." Two more tragic drowning statistics that needn't have happened. Who's next?



Dear Editor:

Enclosed is a snapshot of several largemouth bass I caught in Crawford County waters last season. The three weighed 5 pounds, largest 3 lbs., 17 inches in length; smallest, $\frac{3}{4}$ pounds, 11½ inches long. After quick photo I returned two smaller fish unharmed to the water. All were taken on flatfish. I enjoy the *PENNSYLVANIA ANGLER* very much, in fact more than any other publication dealing with fishing. I started tying flies this year and those lessons in the *ANGLER* came in mighty handy.

CHARLES W. YOUNGINGER
Meadville, Pa.

The Delaware County Field and Stream Association, according to their "club news" scheduled their annual field day on May 17th at the club site. Trap, skeet, plug casting, archery and other activities were offered to members and their families.

West Chester Club scheduled their bass meeting for June 23.

The Holmesburg Fish and Game Protective Association thanks the Pennsylvania Fish Commission through the pages of their April issue of the *Club News*, for the splendid trout allotted Pennypack Creek.

The Fairview Sportsmen's Club, Bridgeville, Pa., elected the following officers for 1953: August Kalkstein, president; Dr. James E. Walton, vice-president; Angelo Pepe, secretary-treasurer; Justo D'Agaro, Cyrus Holman and Frank Floss, trustees. The Club's charter was received May 1, 1953.



Ralph E. Ashwell, Harrisburg, Pa., snagged this 25½-inch, 5-lb., 10 ounce brown trout on a minnow at Letort Springs, Carlisle, Pa.

Dear Editor:

I enjoy every issue I receive of the *PENNSYLVANIA ANGLER*, therefore don't want to miss one issue, so would you please inform me as to when my subscription expires?

If I may offer a suggestion, I think it would be an advantage to your office and to your subscribers if, on the small address tag on the magazine you would put the expiration date of each individual subscription after his name. As an example . . . John Doe—2-54, indicating Mr. Doe's subscription would expire February, 1954.

I am enclosing a photo which I hope you can publish as it would sure make my son proud. It is a 5¾-pound catfish, 22 inches in length caught at Churchville. It is a large fish for the Philly area as this is probably the heaviest fished part of the state, so when you get a large one, you like to show it off.

If your magazine continues as it is at present, you have many years of success ahead.

CARL C. FINK
Philadelphia, Pa.



Dennis P. Fink, 5 years, hefts this 5¾ pound, 22-inch catfish he took recently in Pennsylvania waters. Master Dennis is a Philadelphian.

Johnny Mock, outdoor editor, All Outdoors, The Pittsburgh Press, has reissued his stream map of Pennsylvania. Copies can be secured through Sportsmen's Novelties, Box 4658, Pittsburgh 6, Pa.

The Fly Book

By A. G. Shimmel

The Partridge Spider



a color known to ladies as maize. The body is started half way down the bend of the hook and ribbed with gold wire or brown floss. The feature of this pattern is the hackle which is tied spider fashion of gray speckled partridge. There are no wings or tail. The general impression of the fly is that of a soft sparse Gray Hackle Yellow. The partridge hackle stirs enticingly with each movement of the current.

Attach the fly to a long fine leader and soak thoroughly so it will sink quickly. Cast to one side of the resting fish with as little disturbance as possible. Many will hide and others will mill excitedly. Let the fly sink until it reaches the bottom then allow it to rest there until the trout quiet down and return to their original positions. Move the fly slowly across the bottom a few inches at a time allowing the fly to come to rest between each movement. The hackle will open and close in a most lifelike manner. A quickening movement of the fins will indicate the trout's growing interest. Before many moments the trout will move over and suck the lure from among the pebbles. Slight lift on the rod tip will set the hook and the fun is on. Sometimes after considerable time has elapsed another trout can be taken from the same location. Only on rare occasions can a third be coaxed into striking.

As will be noted this is a specialized fly and method for unusual conditions. Its size and color can be varied but yellow will prove most useful.

If you are inclined to profanity or lack patience this method is not for you.



25-inch brown trout caught by Robert Nico-demus of Philipsburg, Pa., on Bald Eagle Creek below Milesburg, using a spinner. Photo courtesy of the Clearfield Progress.



James Heckert, Philadelphia, Pa., hooked this 26-inch, 5-lb., 2-oz., walleye in the Susquehanna River near Millersburg last season. Mr. Heckert's son is not only dwarfed but almost hidden by the big pike-perch.

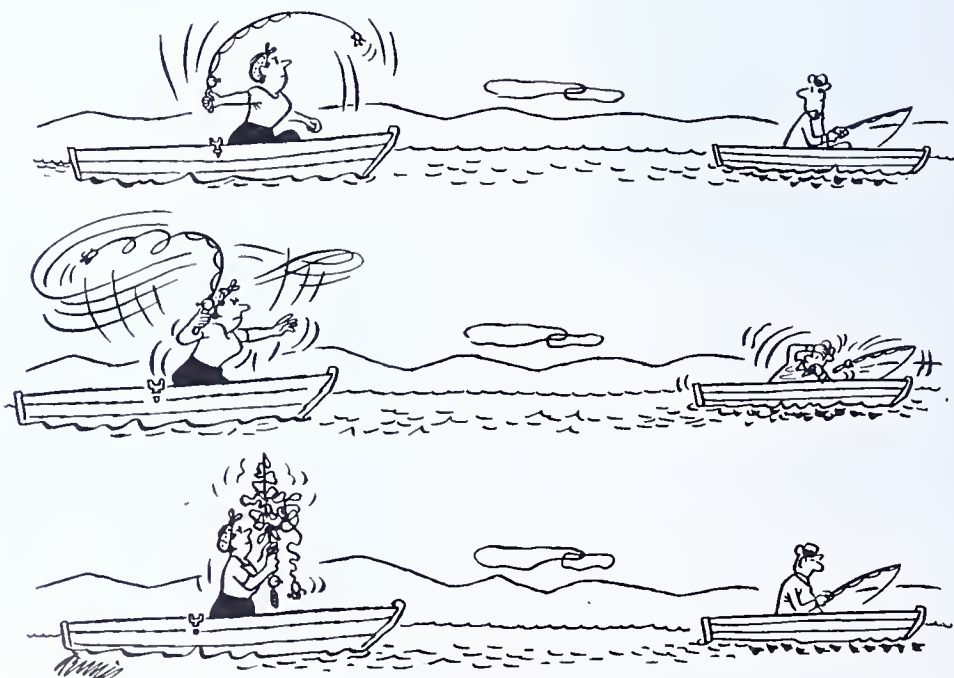
ONE of the most exasperating situations confronting an angler is to find the water of his favorite stream low and crystal clear with trout lying idly in schools ready to dash for cover at even the suggestion of a fly floating over them. This same condition is encountered many times where the clear mountain spring brooks have been transformed into small ponds by beavers. Here the native brook trout grow to fair size. Because of their instinctive wariness the angler does not find them easy victims.

One of the most successful methods of taking trout under these conditions had its origin in a trick of the Scottish poachers. The first requisite is a lure that will attract attention without frightening the fish unnecessarily. The second is the method of presenting it, tempting the fish to strike.

The lure is a special variation of the old Gray Hackle Yellow tied on an extra hook or better still on a fine dry fly hook weighted with lead wire. The body is of pale yellow wool or fur of



Paul Adams, R No. 3, Kutztown, Pa. Caught this big 18½ pound, 32 inch carp near Moslem Springs, Pa. Photo by Johnnie Mittl.



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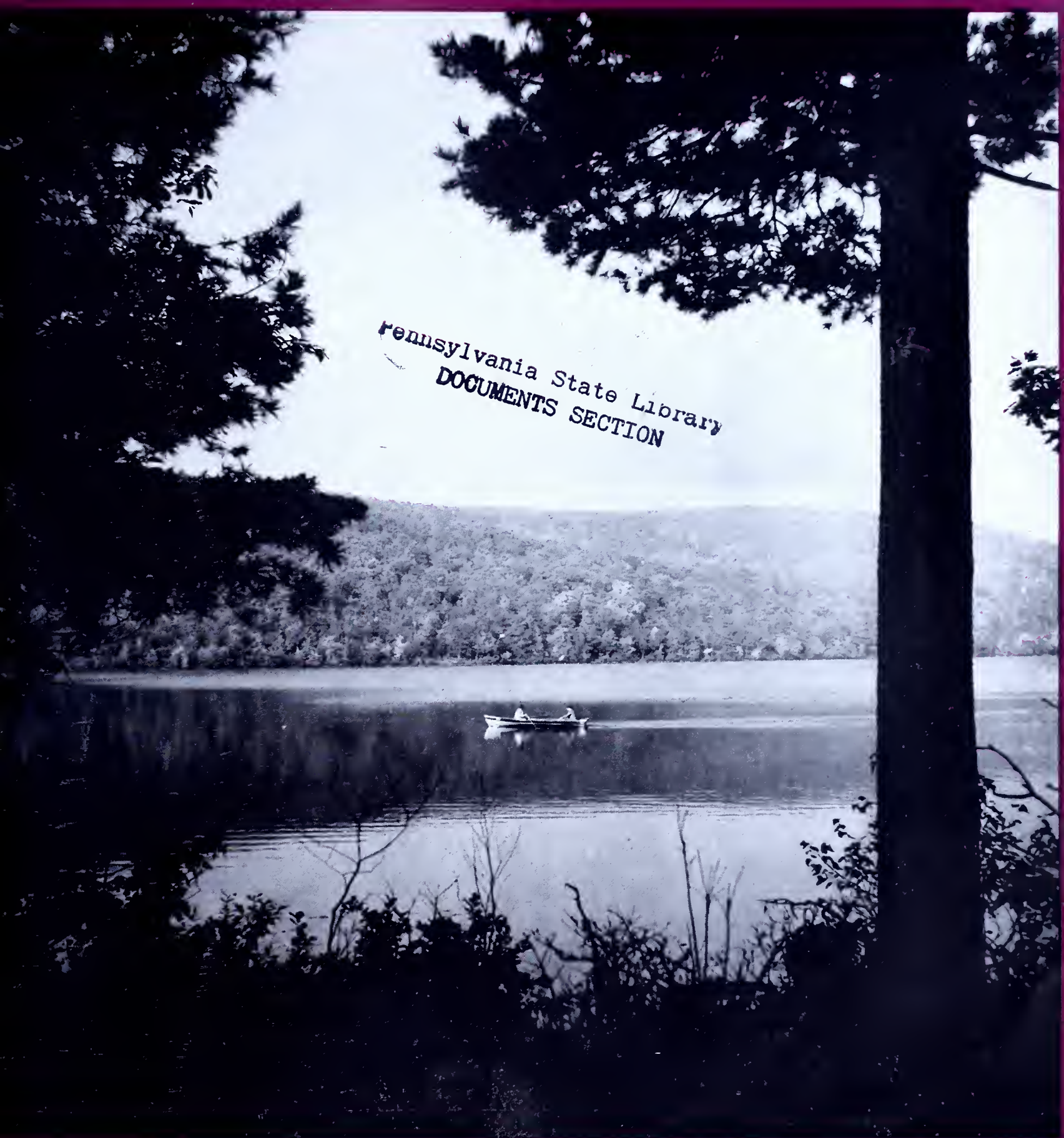
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1953

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Time Out!

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PENNSYLVANIA ANGLER

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AUGUST, 1953

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THE COVER . . . FISHERMAN'S
DREAM, a quiet, clear lake like a
sparkling diamond set within the emer-
ald of pines.

BACK COVER — 175-foot high Dingman's
Fall's on Dingman's Creek, Pike County.
Photo by La Mar Mumbar.



George W. Forrest, Editor

1339 East Philadelphia Street, York, Pa.

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Virgin Run Lake Dedicated



Robert S. Cooper, Connellsville, Fayette Co., former president of the Penna. Federation of Sportsmen's Clubs opens the program, introduces the master of ceremonies.



Salute to the flag, group singing of America, Rev. M. B. Clendenien offers the invocation. Standing left to right are: J. Allen Barrett, Rev. Clendenien, Bernard S. Horne. Seated at Mr. Barrett's right is Joe Barclay, pres.—Penna. Federation of Sportsmen's Clubs.



Bernard S. Horne, immediate past president of Pennsylvania Fish Commission under whose administration Virgin Run Lake was constructed delivers dedication address.

Fayette County pasture converted into 35-acre, public fishing lake by the Pennsylvania Fish Commission as years of planning and dreaming are completed.

THE formal dedication of Virgin Run Lake located near Flatwoods, some ten miles west of Connellsville, in Fayette County, on Saturday, July 11, brought to a culmination many years of dreams and plans of Fayette County Sportsmen.

What was heretofore a grazing pasture, has been converted into a beautiful lake embracing some thirty-five acres, reaching a depth of twenty-eight feet at its deepest point. The lake makes a gradual contour rise to its shores and provides a most beautiful setting for public fishing in the southwestern Pennsylvania area. This Lake is the first of its kind to be built from start to finish by the Pennsylvania Fish Commission. A picnic and general recreational area with ample parking facilities is now being developed on the one hundred acre reservation upon which this fine lake has been constructed. No swimming or motor boats will be permitted, and the discharge of firearms in the area is also forbidden. The throng of people attending the dedication ceremonies has been estimated in excess of three thousand, with close to one thousand automobiles systematically parked by a detail of State Police augmented by nine uniformed fish wardens under the supervision of Minter Jones, Supervisor of the Southwest Division.

Serving as Master of Ceremonies was J. Allen Barrett, the Commission's Director of Public Relations, who was introduced by Robert S. Cooper of Connellsville, former President of the Pennsylvania Federation of Sportsmen's Clubs, and the Fayette County Fish and Game Protective Association. Barrett selected as the theme for the ceremonies, "He who dreams is a dreamer, he who works can become a drudge, but he who works and makes his dreams come true, he is a conqueror." Bernard S. Horne, immediate Past President of the Pennsylvania Fish Commission, was the guest speaker and his remarks were delightfully received by the large audience as he high lighted plans for expanding and improving the fishing opportunities in Pennsylvania.

The dedicatory exercises were sponsored by the Fayette County Fish and Game Protective Association and the Pennsylvania Federation of Sportsmen's Clubs. The program opened with music by the Perry-Lower Tyrone Township Joint High School Band. Rev. M. B. Clendenien, Minister of the Star Junction Methodist Church, offered the invocation.

Prominent sportsmen present for the exercises included: Johnny Mock, Editor of "All Outdoors," Pittsburgh Press; Joe Barclay of Punxsutawney, President of the Pennsylvania Federation of Sportsmen's Clubs; Russell Blair, Chairman, of Perryopolis; Thomas F. O'Hara of Bellefonte, Construction Engineer for the Pennsylvania Fish Commission; Mike Mitchell, President of the Fayette County Federation of Sportsmen's Clubs; William Henning, President of the Pennsylvania State Division, Izaak Walton League of America; Frank Rutledge of Pittsburgh, Conservation Chairman of the Pennsylvania Federation of Sportsmen's Clubs; L. C. Liddell, a state director of the Izaak Walton League of America; M. Hayes Liston, Past President of the Pennsylvania State Division, Izaak Walton League of America; and Dr. Alexander, City Health Commissioner of the city of Pittsburgh.

Following the speaking program, the lake was stocked with seven Com-

(Turn to Page 28)



Section of throng attending ceremonies and surrounding one of the seven tank trucks of the Fish Commission which delivered original stocking to the lake.



Bernard S. Horne places first net of black bass into the new lake.

View of Virgin Run Lake taken one-half hour following the ceremonies when the all-clear—"Fishing Permitted" order was issued by the officials. Anglers lost no time initiating waters of the lake!



WHILE you are reading this page, the Mississippi, mightiest of American rivers, will dump enough silt into the Gulf of Mexico at its mouth to bury an average city lot with a layer of mud three or four feet deep!

Every hour, day and night around the clock, Ol' Man River carries 40,000 to 50,000 tons of silt rolling past New Orleans. The total for an average day is more than a million tons. In the course of a year it reaches the staggering figure of 400,000,000 tons. The bed of silt at the river's mouth is miles thick now, reaching farther and farther out into the Gulf, growing faster and faster as erosion pours more and more mud into the upstream waters.



BADLY ERODED stream carries tons of top soil from farms in the uplands causing siltation certain to ruin good fishing.

EROSION---Creeping Paralysis of Field and Stream

Some of that silt comes from the plains of Kansas and Oklahoma, some from the prairies of the Dakotas, some from the hillside fields of Pennsylvania and Ohio. Every state in the Mississippi valley makes its contribution to the rolling yellow flood. And that's not all.

What is happening the length of the Mississippi and its tributaries, all the way from Pittsburgh to Montana, is likewise happening in greater or lesser degree on most of the rivers and creeks and runs and branches in Pennsylvania and every other state. With the exception of those few that flow through virgin country, or the fewer still where erosion has been controlled, the waterways of America are burdened nowadays with mud washed off the hills and fields through which they flow.

The results are manyfold and none of them are good. Most serious of all, of course, the land is robbed of its fertile top soil. Fields are denuded, gullied, laid waste. Whole watersheds turn sick from the loss.

That's only half the story. The other half, the part that concerns you as a fisherman, has to do with what happens to those tons of silt in their new

location. Mud, good rich thick mud, is a fine thing on land. That's where it belongs. But in water, where it doesn't belong, it can do as much damage as the proverbial bull in the china shop. What the sportsmen of the country ought to worry about is that the silt-burdened creeks and rivers are on the way to ruin as fishing streams, and are carrying many a lake and pond and reservoir into which they dump their yellow load down to ruin with them.

In Pennsylvania and many other states, streams once clean and clear and deep have become too silted to supply good fishing. Lakes are filling up, and carp are replacing bass as the process goes along.

Hardly a piece of water in the settled areas of the country is unaffected. One of the best bass and bluegill lakes I know provided me a dramatic ex-

ample last summer. It's a small lake, covering less than ten acres, spring-fed and lying in the center of a big, green, uncultivated marsh. If there was ever a lake that should be safe from the effects of erosion it's that one, since it has no inlet to bring mud in and the marsh around it soaks up the runoff from the adjoining fields like a giant sponge.

Most of the time, that is. But last June we suffered a hard flash rain one night. The downpour lasted for more than an hour. Just to the north of the little lake a rolling field had been newly planted to corn. Farmers in our part of the country haven't yet gone in for contour farming. The corn rows, running up and down the hills, made natural channels for the sluicing rain. The next morning every hill in the cornfield was furrowed with young

By BEN EAST

(One of the Nation's most famous conservationists)

—Field Editor—Outdoor Life



BADLY ERODED bank has been treated to help keep soil where it belongs . . . on the land! Thousands and thousands of tons of precious top soil are lost forever each year, silting in stream beds, former homes of fish.

HIS FUTURE angling pleasure is at stake! Crusades all over the nation are pointed at saving our streams, more importantly, saving our top soil so necessary to provide food.



gullies and that clear, spring-fed lake was a yellow, muddy pond.

No lake, no stream, save those in deep wilderness, is immune to this blight. The effects are most apparent in the case of trout water. Erosion covers the gravel bottom of trout streams with a layer of sterile sand that supports no insect life and so yields no food for trout. Streams famous for their fishing twenty or thirty years ago are much like fishless deserts today, as a result of sand washed in from eroded banks.

More than one state is coming to believe that it can no longer maintain trout fishing at a satisfactory level unless the tide of erosion is stemmed and its long-range effects overcome. And that promises to be a long and costly job.

This slow process of washing land into water, covering stream beds, filling channels and reservoirs, goes on silently and stealthily, day and night, week after week and year after year, for the most part not seen or noticed. By the time it attracts attention in a creek or river the damage has been done.

Last year I visited a community in Wisconsin where farmers living in the valley of a small creek have banded together to cure a bad case of erosion,

both for the sake of better farming and in the hope of increasing their supply of fish and game.

The man who spark-plugged that program told me that when he was a kid in country school, forty years ago, there were holes in the creek fifteen feet deep. He learned to swim there and in his boyhood he saw pike up to 14-pounders caught in those holes. Today there isn't a hole more than thirty inches deep the length of the stream. What happened? The stream bed filled up with soil washed off the hilly fields of the valley, robbing the farmers, the fishermen and the school kids all at the same time. A construction crew excavating for a new bridge down by the mouth of the creek a couple of years ago found the rails of an old fence buried twelve feet in the mud. That tells the whole story.

The farmers of the neighborhood have done a good job in recent years of tying down their land by contour plowing, grass farming, planting gullies with shrubs and trees and other cover. They are keeping the soil where it belongs now, and farming, fishing, hunting are getting better. To bring a creek back is a big job, requiring time and money. A stream clogged with a dozen

feet of silt does not clean itself in a few years.

More would be done about this creeping sickness of our waters if more people knew about it and understood the serious threat it poses. Not many ever see sand actually washing into a trout stream. Few who look at a silt-laden river know of the long-range results of silting.

If the soil that leaves a poorly managed farm after a heavy rain could be deposited on the floor of the farmer's house—assuming the house would hold it—we'd be far less indifferent to the effects of erosion. If you, Mr. Fisherman, were to find heaped on your lawn some morning all the mud that washes into your favorite stream with each summer storm, you'd roll up your sleeves and wade into the erosion battle bare handed and single handed!

What can the sportsman do? How can he attack this blight on the future of his own fishing? In many ways, both as an individual and banded together in clubs and organizations. He can encourage and support his state fish commission in carrying out programs of stream improvement designed to curb siltation and repair damage

(Turn to Page 26)

lose a hook spare a bass

By DON SHINER

SMALL BASS frequently swallow a baited hook greedily, become hooked deeply in stomach or vital organs. Unthinking or heartless anglers yank out the hook, throw the undersized fish back into the water with a resounding smack, then wonder why it floats belly up, soon to die. It's a sure way to retard better bass fishing.

HANDLE fish gently, . . . don't squeeze! Snip the leader or snell of hook close to the mouth, body juices will dissolve the hook in time and the bass may continue to live and grow into a fine specimen for next year's fishing.

DON'T THROW the fish into the water, it may burst his air bladder or cause other injuries. Return him gently . . . LAUNCH HIM!

HOOKS are very inexpensive so we urge all anglers to adopt the slogan coined almost 15 years ago by Mr. C. A. French, Executive Director, Pennsylvania Fish Commission: LOSE A HOOK . . . SPARE A BASS It means better bass fishing!



SHORT of required legal nine (9) inches this undersized bass must be released.

DEEPLY IMBEDDED HOOK causes disgust and impatience with some unthinking anglers.



PENNSYLVANIA ANGLER



HOLD IT! Don't squeeze that fish nor yank the hook out taking parts of vital organs along with the hook. It's almost certain death to that fish!



RIGHT WAY is to hold fish gently, but firmly, snip or cut leader or snell as close to the mouth as possible. Strong body juices will eventually dissolve the hook.

WRONG WAY to return a fish to the water. Throwing or tossing him back may burst the air bladder or cause other injuries.



RIGHT WAY . . . release bass gently by holding him in the water and launch him carefully. This bass may live and grow up to fight more fiercely another day.





CANOE CAMPING is fine if only bare essentials are taken along. Food, duffel and canoe can grow mighty heavy on the shoulders, especially on portages.

Short-Cuts to Easy Camping

By A. EARL JOURDE

Outdoor Photographers League
Photos by Jourde & O. I. Sprungman

CAMPING has changed with the times. Gone are the old-time deer camps and fishing parties of a month's duration when two or three wagons hauled in the equipment and food. All of us dream of long canoe trips into the Northwoods, of pack trips into the Canadian Rockies, or backpack trips over the Appalachian Trail, or long float trips down strange rivers. But, for most of us, camping is restricted to weekends and a two-week's vacation, with time so limited that each hour required for camp chores is an hour stolen from our hunting and fishing.

Down through the years we have worked out several time-savers, which we would like to pass along to PENNSYLVANIA ANGLER readers.

Camping falls into three broad classes: boat (including canoes and outboards), backpacking and automobile. Considering the country as a whole, the latter is by far the most popular. It will carry a large and heavy load. The fundamental camp equipment and its uses are the same, regardless of the manner of travel. For an outboard trip, you pare down the auto load; a canoe trip requires paring

down the outboard load; and a backpack trip means carrying only necessities.

Our weekends are virtually scheduled to the hour. In a way, we begrudge the hours taken from our sport. Much of our food is prepared at home on Friday evenings, and placed in glass jars ready for carrying in the refrigerator. This is space and time saving. During the summer, foods that are not thirst-inducing are selected. This means foods with much moisture and very little salt. Celery is excellent, and canned tomatoes are good, if you like them. For almost salt-free sandwiches, baked chicken cannot be beaten.

Even though certain preparations at home tend to save time, it is in camp when we dawdle around the fire and piddle along doing the breakfast dishes that a couple of hours are lost. These two hours will be more enjoyable if spent in hunting or fishing. If the party consists of two, a good stunt is to prepare the coffee the night before and keep it in a vacuum bottle. This, with rolls, will take the edge off the early morning appetite. If fresh coffee is preferred, set out the chuck-box, fill the coffee pot, then start the fire. While the fire is burning down, roll up the bed. If two or more are in the party, teamwork is most important, and someone should take care of the cook's bedroll. As a rule, a good camp cook will have breakfast prepared by the time the other members of the party have completed their tasks.

The handiest and greatest time-saver is a chuck-box, and its advantages are many. Virtually everything pertaining to food and its preparation is in this one container. When traveling, it is carried in the car's luggage compartment; when cooking, it is placed beside the fire so that everything is within easy reach of the cook; on returning home, when unpacking the car, it is placed on a shelf where it is ready for the next trip.

Through the years we have seen many forms of the chuck-box in use, some with partitions or a cubbyhole for each item, others with folding legs. But we have found that an open box 12x12x18, without a cover or partitions, is more flexible and better meets our requirements. The box was built of materials on hand at the time. The ends are of 3/4-inch lumber, and the sides and bottom are of 3/8-inch material salvaged from a crating box. Large drawer

pulls were fastened on the ends as handle.

Into this box goes the nesting cook kit, coffee, sugar, salt, pepper, flour and cornmeal jars; a small piece of canvas, matches in a jar, and the usual canned goods, together with some dehydrated vegetables and soups. Our box is so stocked that we always have three or four extra meals tucked away. Through a long period of use, it has become the depository for many things besides food. Today, in addition to the food and cook kit, it carries the hand axe, snakebite kit, extra tent stakes and other items often needed.

Pint and quart Mason jars, used in home canning, are excellent for carrying coffee, sugar, shortening, flour and matches. The small mayonnaise jar is good for salt. We have never had a jar break, and they have been hauled for more than 150,000 miles over every conceivable kind of road and terrain on which it is possible to drive a car.

A 15-inch fork with a wooden handle is also invaluable in dish-washing, by keeping the hands out of the boiling water. The tines are stuck into a cake of soap which is sloshed around in the water until there is sufficient suds. Next, the dishrag is wrapped around the tines and the fork then serves as a mop. Delicious toast can be made by placing a slice of bread on the fork and holding it over the coals.

A pair of bent-nose, slip-joint pliers has become one of the most used items about our fires. It is excellent for lifting a hot cover to allow a peek into the interior of a cooking kettle, or as a handle by grasping the edge of a pot for removing it from the fire without tipping, or for pouring coffee.

A piece of canvas roughly two feet square, when placed on the ground beside the cook, serves to keep sand and gravel out of the food and plates, in addition to protecting the cooking gear.

All knives, forks, spoons and other cutlery used for eating and cooking, except the large fork, are carried in a cutlery roll made of denim.

Stainless steel has proved to be the best for camp use, except in the case of paring and butcher knives. These should be of good quality carbon steel because this material seems to hold an edge better than stainless steel.

(Turn to Page 26, more photos pages 10-11)

AUTO CAMPING is popular with all outdoor loving Americans. Here gas stove and picnic set offer compactness. Tent and sleeping bags are carried in trunk, extra duffel limited on amount only by available space, inside or atop car.





HOMEMADE CHUCK BOX is handy item placed within easy reach of the cook.



DUTCH OVEN cooks hot cakes much better than thin frying pan.



GROUNDS SETTLED, now gently
 pour out the coffee, add frying
 eggs, bacon or fish to the menu
 . . . ahhhhhhh!



WATER CANS of stainless steel pack
 tighter and better, are more convenient
 for daily use around camp.



HOT POT can be removed from fire without
 danger of serious burns by using a pair of bent-
 osed, slip-jointed pliers.



COFFEE WATER is heating as fire burns down to
 the cooking coals.

dig those mad muskies

By ERWIN A. BAUER

"SHOW me a creek that's good for baptizin' and I'll show you a creek that has muskies." Steve Sites' background as a former traveling parson was showing.

"Take the lower Shenango bottoms for instance," he continued. "There's muskies in those meadows. Find a pool that's still and deep enough around the edges to dunk a dozen or so converts and you're in good water to catch one of them devils."

And old Steve wasn't too far wrong. Find a slowly meandering stream in northwestern Pennsylvania with mud bottom pools, some vegetation, and no visible current and you've found a place where muskies—perhaps some of the jumbo-size editions—dwell.

"But finding muskies is like savin' lost souls. It's far from a guarantee of fillets in the pan. Chances are you'll put in plenty of time before you're showing a bragging fish around town," the aging angler always adds.

Nowhere in their entire range are muskies easy to catch nowadays. Of course you will hear of the panfishing housewife who hangs a whopper on a hot August afternoon. And every locality boasts of the rank beginner who landed a trophy musky on his first fishing trip. But these are rare incidents indeed. Musky fishing is a rugged, monotonous business. But it has numerous rewards.

Most muskies are taken more or less accidentally by the bass and wall-eye fishermen. There is no denying that. But a general knowledge of musky ways, habits, and environment is all these fishermen need to become hopeless musky addicts.

Many muskies are taken on light tackle. In fact several that have succumbed to spinning lures were reported here in the Angler. But that's like hunting partridge with a slingshot. You can do it, but you would be better off with a casting rod of considerable backbone. For this one type of angling alone I still keep a 5½' stiff casting rod. No other weapon can consistently set the hooks deep enough into the bony jaw of a musky. Your reaction to the strike is the critical moment in musky fishing. If that is done successfully, you can almost bank on a successful ending. Remember, if you can in the excitement of the moment, to strike hard several times.

But let's go back a little. Let's assume that you are not satisfied for awaiting a musky strike while you fish for bass; you want to go right out after the big boys. Well, you're in for many monotonous hours of casting. But if you do it right your big moment will come suddenly enough to turn your hair gray.

Your best bet is to locate a musky, or several of them, if possible. It

MUSKELLUNGE, better known as musky or muskie is only member of the pike family that has no scales on lower halves of the gill cover and cheek. World's record is 69 lbs., 11 oz.





TYPICAL MUSKIE WATER and here's one tearing a big hole in the surface, a real thrill for any angler.

BANK WALKING muskie seeker's fishing kit. Note lures used for mad muskies and gaff, a handy item to have along. Lakes and rivers of western and north-western Pennsylvania house big muskies, the Pennsylvania Fish Commission now has program for muskie culture and stocking.



isn't as hard as it sounds because you can do it while you are fishing. Constantly keep an alert eye for musky movements. These will be in the form of heavy swirls just under the surface. Rarely will they break the surface.

Before approaching a deadfall or log jam along the bank, observe for a few minutes to see if you can detect any movement down among the snags. Be especially watchful as you approach the obstacle for the movement of a long thin shadow. On one or two occasions when water and light conditions were exactly right I was able to approach near enough to see a musky hiding motionless under a fallen sycamore. More often, though, the only clue will be a shadow fading away into deep water as you draw near. Mark that place well!

Once you have discovered a musky lair you can go to work. Perhaps not the same day you spooked the fish—at least I have never had any luck that way—but starting on the very next trip. Select a position a good cast away and go to work.

If repeated casting to the same general area bores you, better stick to trout or the other lightweights. Remember, I said this was monotonous business, and that was an understatement.

You'll have to change lures occasionally, and you'll have to vary your retrieves, but you will not have to change your position too much.

Plugs are good; most all of the popular bass models. And you don't have to retrieve them at high speeds as you may have read before. Frequently I try fast retrieves but these meadow muskies, unlike their cousins in the north country, seem more interested in slower moving hardware.

Try this occasionally. Break up a very slow, deliberate retrieve with sudden fast darts. Day in and day out, I think it is the most deadly.

After you have cast until your patience is exhausted, and that may vary from several hours to several trips, you will lose interest. You will toss your bait listlessly. Your mind will wander to a cold glass of brew or to the days when you could always catch a mess of trout without much effort. You've doggone near forgotten where you are when—socko—you have a strike that has you talking to yourself. They never come when you expect them. That brings us up to date. If you remember to strike back hard and sharp—you'll have a fish. If not, you have good cause to go after that cold brew.

Besides the usual run of proven

plugs, and you should stick to sinking plugs almost exclusively, many of the spoon-hook and spinner-bucktail combinations are effective. Generally you should use the spinners in deeper waters. Move them a little faster than the plugs. Most of the time I use a medium retrieve, moving the rod tip slowly up and down as I wind. My line, incidentally, is 18 or 24 pound test.

Perhaps it's habit more than anything else, but I prefer a black bucktail behind my spinner. Almost to a man, however, the fraternity of musky fans who work the streams in southern Ohio (similar physically to Shenango and the Allegheny) use either yellow or white buck-tails. To tell the truth, though, most of them use live bait at least part of the time—and they catch big fish.

Here's the way they do it. Large chubs are preferred. To most effectively use bait, you should have a stiff casting rod, a reliable reel, and a bobber—nothing else. You can either hook the bait fish through the tail or you can use one of the many harnesses found on most tackle shelves. Few occasions call for sinkers of any type. The bobber serves only to locate your bait and to some extent in keep-

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ANGLING AGONY

A PICTURE DIARY OF A FISHING TRIP

By ERIC WAHLEEN



GOIN' FORTH on fishing trip, partners have excellent prospects and plenty of tackle, enthusiasm.

FUN BEGINS when Sam gets nosy, has to poke his beak into the engine room.



YOICKS! Perfect uppercut clips Sam on chin, trip starts off with a whang!

PENNSYLVANIA ANGLER



"LOOK, SAM, get forward where you belong and keep a sharp lookout for logs and rocks."



PERFECT POSITION to go overboard, Sam's got 'em hung up on a big goonie.

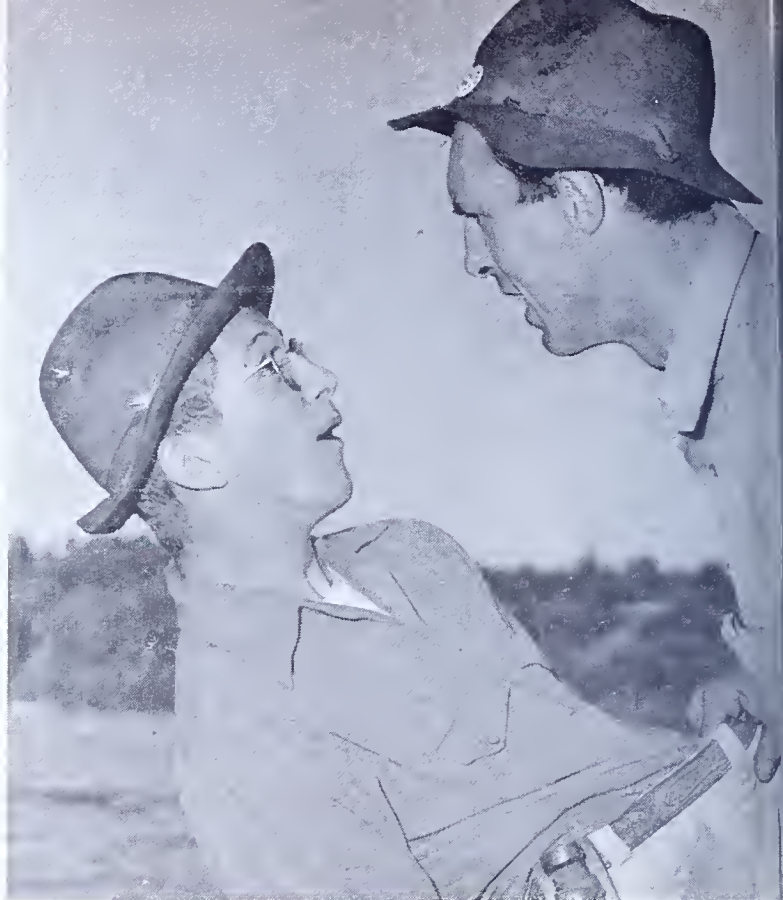


YEOOOOOOOW! That grinding, nerve-wracking noise from motor indicates something radically out of whack.

YEP . . . Sam's got hold of something big . . . Look at that rod bend and Sam's really playing him neat.



PROPELLER FISH, nonedible, is Sam's prize. Jake's mighty unhappy with the whole tangled mess!



LOOK, JERK! Keep your cock-eyed line out of the motor or it's ashes . . . YOU HEAR???

HOW DEEP IS IT? Sam borrows Jake's good fly rod to test depth, dunking good reel and all. This is last straw, Jake gives up, makes for the landing.



HOLD THAT BOAT STEADY, CHUM . . . while I take off motor.



DUNKED! Sam finds longest distance between dock and boat is heap big splash.

RESCUED, poor half-drowned Sam's glad to get back on terra firma once again.



END OF FISHING TRIP! Jake balances motor with wet Sam. Yep . . . angling can be agonizing with a drip!



Reel Oil

By Margaret Feldman

Member—Pennsylvania Outdoor Writers
Association

Our own Keystone State turns out the finest oils in the world. It is fitting, therefore, to point to a fine oil manufactured and distilled to the exacting formulas demanded by anglers for use on fine, expensive reels. Details of how the oil is made provides educational and informative reading.



REFINERY, only a section shown, turns out oil in both bottles and tubes for convenience of anglers, winter and summer.

THE EXPERT angler has long since learned that just any oil is not to be used on his prized reels. He wants an oil that will give longer, easier casts, will not gum or evaporate, and will protect his reel from rust and corrosion. In short, the real fisherman wants the perfect oil for his reels—an oil that will lubricate AND protect.

A reel, which is actually a precision instrument, should be lubricated by a highly refined instrument oil. Experience has taught that such an oil must permit free, unhampered movement of all parts, and the oil must necessarily be one that does not gum. One reason for gumming is the evaporation of one of the ingredients making up the finished oil, thereby changing the composition of the oil; therefore the oil must be one that will not evaporate.

Even in high temperatures a good oil should not evaporate. Most fishing

is done during the summer months when we encounter heat and humidity, and the oil should be such that it will continue to lubricate the reel and will also protect from the rust that otherwise would develop from atmospheric conditions. Furthermore, heat is generated as the line is played out and re-wound, but a good oil will not be affected by heat.

One angler who, after a single application of good oil on his surf reel, cast 50 miles of line at an estimated rate of 10,000 r.p.m. with the retrieve of the line at about 500 r.p.m.—which means roughly 100 miles of line cast and retrieved—found the reel and spool bearings still in good condition. The oil had not evaporated, nor had it been washed off in the salt water.

Many years ago the Fulcrum Oil Company set out to manufacture a precision instrument oil, specifically for

watches and clocks. Because the company was located in the heart of the original oil fields in Pennsylvania and because Pennsylvania Grade-A oil was so highly thought of, experiments were made with this mineral oil. It was soon learned, however, that a mineral oil should not play any part in a precision instrument oil because of its high rate of evaporation and because it would be apt to leave a residue of asphalt or paraffin, so combinations of other oils were then extensively tested.

In determining the oils to be used, it was necessary to consider what the properties of the finished product should be: the oil must not evaporate, it must be acid-free, must not leave a residue, have perfect surface tension, an adequately low pour point, high flash-point (degree of temperature when the first vaporizing takes place) in order to withstand heat generated,

it must not gum or become stringy, and it must have perfect viscosity for the mechanism which is to be lubricated. It was recognized that while one ingredient would provide certain required characteristics, other ingredients must supply other factors which would be essential to the finished product. One thing that would be required of each ingredient, however, was that not one of them would evaporate at normal temperatures. It was also necessary to determine the proportions of the basic oils finally selected to be used in the refined product. Eventually in 1912 a basic formula was devised which produced a highly satisfactory precision instrument oil, variations of which have been used the world over ever since.

Over thirty years ago sportsmen in northwestern Pennsylvania began to use one of the oils originally designed for street-car valves and larger instruments and discovered that it was the perfect oil to lubricate and protect their guns and reels.

In the manufacture of Fulcrum Oil, for example, a combination of special-grade, non-mineral, highly oleaginous oils is thoroughly blended in strict adherence to the proportions prescribed by the formula. This basic material, which is maintained at the proper tem-

perature throughout the entire manufacture, is then filtered through material which extracts undesirable elements, including all traces of acid. The "refinery" consists of rows of large glass jars filled with the basic mixture suspended over filters through which the refined oil runs into clean glass containers. This is a slow process for the oil is permitted to filter without artificial aid in order that all extraneous material will be removed. Each batch of oil is tested to make sure that it meets the standard established, after which it is again filtered in order to remove any dust or impurity of any kind. This procedure results in an oil which does not evaporate, is acid-free and has the proper viscosity for reels—light enough to flow into the gears and bearings and heavy enough to stay there.

This is probably the appropriate point to say a few words about the word "viscosity" which is used frequently in a discussion of oil and sounds so technical and yet can be easily explained. The dictionary gives the meaning of the word "viscous" as "adhesive or sticky." Viscosity is the measure or degree of that adhesiveness. For instance, if you have two liquids, one thicker than the other, and you partly

immerse two metal rods in these liquids and let the liquids which adhere to the rods drop off the ends, the one which drops the faster is less viscous than the other. It is of the utmost importance that the right lubricant for precision instruments be of the exact viscosity which those mechanisms require. The proper viscosity permits the small particle of oil which is used, to stay where it is placed without running away or spreading.

The oil is then packaged in crystal-clear bottles which have been sterilized—every effort made to prevent a foreign element, which might set up a reaction causing deterioration of the quality, from being introduced into the oil. Transparent bottles are used so that it is possible to see if any dirt has entered the bottles. This cannot be detected if the oil is packaged in a colored bottle or container made of opaque material.

The bottle is capped with applicator-top. The applicator is used to enable the angler to lubricate those hard-to-reach places in a reel and will also permit him to apply only the small amount of oil that is necessary to lubricate. There is no point using excessive oil which will only run off. Incidentally, Jason Lucas, internationally famous fishing authority, in his volume *Lucas on Bass Fishing* recommends an "applicator on the stopper of your oil container, so that you can place a drop or two exactly where it will do the most good. The method sometimes seen, of squirting oil on from a can, is—well, just awful!"

When sportsmen learned what a small amount of good oil was necessary to lubricate and protect their equipment, they advocated packaging the oil in a unit which would be convenient to carry in a tackle box. The oil was then packaged in small collapsible lead tubes with eye-tip aperture from which the oil could be dispensed drop by drop. Granted this is an opaque container; yet no foreign matter can be introduced into the oil through the small opening . . . Some sportsmen are inclined to use a more elaborate pocket container, of which there are several on the market, which can be filled with the oil from the bottle. The bottle remains on the work bench, with the result that the angler has his oil ready at hand at home and on the stream.

Not only will such an oil, as is described, lubricate your reel, it will also protect it from season to season through the wide range of temperature which



INSPECTING OIL, even in high temperatures a good reel oil should not evaporate or become sticky yet should give complete protection to expensive reels in both fresh and saltwater use.



BIGMOUTH WATER, with underwater stumps and brush. After the strike you've got to move 'em out fast or risk losing them on the snags. There's something mighty exciting about seeing a largemouth smash a bug on top. At other times Mr. Bigmouth is likely to gently suck it in.

little lures for

LARGEMOUTH

By KEITH C. SCHUYLER

WHAT Dame Nature had particularly in mind when she whipped together ingredients for the largemouth bass is difficult to imagine. For, in the smallmouth bass she did a right fine job, and about the only marked difference in the two is in the size of the mouth.

Inch for inch, they look a lot alike, but old bigmouth is inclined to be a bit on the lazy side. He is more apt to stick around one stump or lily pad and take things as they come into his huge maw, growing fatter, bigger and lazier than his energetic cousin.

And, although he'll tackle anything from a young muskrat to a fair-sized duckling, he is just as apt to suck in a medium-weight insect . . . with a hook in it.

This insatiable appetite and inclination to stick around home most of the time makes the largemouth bass a sucker for little surface lures that work as well on pan fish. Of course, although that other fellow with the junior sized jaws can also be coaxed into the frying pan via the fly rod artificials, we're going to confine this to the more mouthy bass of the two. Fishing for each with surface lures is a separate science although many tactics will work as well on one as the other.

Little surface lures for largemouths fall into one class. They are light, they resemble a big insect or a tiny four-legged creature, they carry one hook, they float.

Right at this spot we must acknowledge there are small under-water lures that will attract largemouth bass well on occasion. And, undoubtedly some good-sized bass are taken on them. But, the most likely under-water lures carry tiny gang hooks or treble hooks with which it is difficult to maintain purchase in the tissue paper cheeks of the bass. This piece is intended to promote the use of little surface lures as the best and most entertaining way to take *Micropterus salmoides*.

An experienced fly fisherman after bass can usually tell from the strike whether his fish will have a normal or over-sized meal trap, and if he has any doubt, the first 30 seconds of the battle will normally set him straight. It shouldn't be necessary to explain the difference between the two black basses. But, it is, as both are frequently found together.

Strangely enough, there are probably more anglers who can't tell one from the other, unless they see them side

by side, than otherwise. Color of the largemouth is frequently a give-away as the color is usually more greenish, shading into white or pale yellow on the belly, while the overmarkings assume the form of a lacy black longitudinal line along the sides from head to tail. The smallmouth runs to bronze or dark green along the upper parts with overmarkings of dark vertical lines along the sides. Positive identification of a largemouth can be made by using as a guide the backward extremity of the closed mouth which extends behind the eye. On the smallmouth, the same point meets an imaginary vertical line extending straight down from the eye.

And that we're sure what he looks like, let's go get him.

In choosing fly rod surface lures for largemouth bass, we want to imitate the food which is most likely on his bill of fare. Into this class falls the hair frog, a killer on almost any occasion when bass are hitting anything. Also sharing top honors in my fly book is the popping bug, a cross between a miniature plug and a true artificial fly.

Armed with these two, and the proper know-how, you can hold your own against any competition, barring none.

But, for the same reason that we carry from 10 to 100 patterns of trout flies when six is usually more than enough, my bass lure box contains a variety of deer hair flies, variations of the popping bug, with and without feathers, the mouse, grasshopper, feathered minnow and others. All of them have been producers except the dilapidated grasshopper and the mouse which never had a fair trial since they were only used when the others failed.

Although the hair frog and the popping bug have been placed on a par in importance, in deference to those who I know have had amazing results with the frog, my preference is the bug. In fact, Chick Gimber, of Wilkes-Barre, has been engaged in a running feud with me over the merits of the two lures for the past three years. So far, we've proved nothing except that both are excellent little lures for largemouths.

The best rod for casting bass lures is most likely one of fairly stiff action, 8½ to 9½ feet in length. Weight, of course, depends upon the quality of the material in the rod whether it be of glass, bamboo or steel.

The ideal line is determined by the rod itself, but best success in casting

will be obtained with a torpedo-type or shooting taper. Too, the line should float.

This last recommendation is the most important in choice of an outfit to fish surface lures for bass. Action put into the lure, as will be explained, frequently soaks a poor line in short order. A water-soaked line will not only make it difficult to handle a surface lure and make good casting nigh impossible, it will cause undue pressures on your rod and may result in damage or actual breakage.

You are allowed considerable latitude in choice of leader material, and one of eight pounds is not too heavy under normal conditions. The extra strength is needed to withstand frequent tugging when you become hung up on lily pads, trees and stumps. Too, largemouths are usually found in spots where the underwater foliage may put your leader to the full test when a hooked bass goes wandering. You will find bass considerably less leader shy than trout.

You must be prepared for long casts.

Most of your fly rod fishing with surface lures for bass will be done from a boat. Necessary long back casts make boat fishing the more enjoyable experience. Nevertheless, we don't want to discount the advantages of this type of fishing in shallow ponds or along the edge of rivers where wading is possible.

Surface feeding fish are much more easily alarmed than those taking their meals under water. For this reason alone, you should be able to send your lure with reasonable accuracy for a distance of 40 feet and beyond . . . especially during the way. This distance diminishes as darkness falls.

Long casts are often required, too, because of plant growth extending far out from shore when shallow pockets near the trees contain feeding bass. And, when a strong breeze is blowing on an open lake, it will take the best in equipment and skill to do a good job.

As to choice of times to fish, it is natural to lean toward evening hours since it is then most surface activity is seen. However, I've had fly rod surface lures produce on bass from early morning, through the heat of a hot summer day, to the darkest night. Your warmer months of the fishing season are by far the best for surface fishing. And, as the evenings grow cool in fall, you will be forced more and more to

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SMALLMOUTH

By BEN C. ROBINSON

UNDER the shady comfort of a grove of basswood trees campers were lounging around on the grass cracking jokes and waiting for the summer heat to dissolve into that fragrant breath of coolness which comes with the setting of the sun.

No one seemed the least bit interested in fish or fishing just then. The camp dishes were done and the tackle was racked about the place with no one interested in the least about whether there was a hungry bass hiding along one of the many old logs that could be seen breaking the current of the stream. Bugs fell from the willows and alders, went clawing their unsuspected way along that sinuous mystery a fisherman knows as the eddy flows and no one gave the matter the least attention, for some one, long ago, had said there was no use in baking ones brains out along a fishing pool when the sun was at its brightest. It was a better time, then, to loaf under a cool basswood and gossip about fishing than to actually go out and roast oneself in the blazing sunlight.

But the old fishermen who idled about our camp on the shore of the creek knew there was nothing to that old fairy story about it being too hot to fish.

"It's never too hot to fish! The summer was intended for smallmouth bass fighting, harvesting hay, wheat and oats, that's the way the good Lord invented it!" said old Ivens to me as we lay in the dusty grass and listened to our friends talking over things that had no connection with catching nice smallmouth bass.

"Right in the heat of the day's the time to get those big bass. A proper minnow, a grasshopper or maybe a dry fly or a small, light plug will do things in hot sunlight that no other trick will ever do in the shady and cool times." That was old Ivens way of seeing it.

I think like Ivens, that smallmouth bass are the gift of summer and the hotter the day, the brighter the sun the better the chances a big smallmouth will rise for a look at most anything reasonable a fisherman has to offer. If you don't believe me try some of the stunts Ivens and I practiced back on those small bass creeks where I was in the habit of camping during every harvest season of the year.

One of the best tricks I think we ever worked out for smallmouth black bass in harvest weather was using run chubs for a live bait and fishing them right in the spotlight of the early afternoon sun then on until about the time the sun started to go down. That's the hottest part of the day. But in a good creek it never gets too hot for fishing of this kind. Of course it all depends on the sort of pool one chooses to fish, for there are pools and more pools in such streams. But we worked out a system of our own for smallmouth bait fishing. We had certain types of pools we fished in extreme heat and we tried to arrange when the stream was down to a fairly low level. We happened on the plan by degrees, finally had it down to where we were almost a hundred percent sure of ourselves.

In the first place we became keenly

critical of our types of bait. Ivens and I never did go in too strong for shiners or darter minnows. Those, Ivens contended, were for crappie and bigmouth bass fishermen. He scorned them! But he revered a run chub! Not just any old kind of chub, either. Ivens would refuse a chub caught from a creek.

"They're no good," he'd say with a disgusted shake of his head. Then he'd take me along with him, show me the sort of chubs he preferred—maybe I should say, revered, for it was almost a ritual the way Ivens chose his smallmouth bass bait. He spent more time hunting up chub water than he did in actually catching smallmouth bass. Once he found the right chub pools and had dangled a short black thread line in it with a small fly hook baited with the head of a grasshopper or a pinch of red worm and had taken about three of the primest of the school of minnows hiding out there, Ivens would proceed to *smell* each bait, nuzzling it close to his prominent nose as intently as though it were some especial aging of wine he was testing for its bouquet. If the chub gave off a cool aroma of mint and watercress Ivens would place it carefully in the new one gallon syrup bucket he always carried along for the purpose, meticulously fill the bucket to within a few inches of its top with water from the run where the minnow was captured. Then over the top, to shadow the water and cool it with harvest time air and sweetened sunlight, he spread a bandana handkerchief loosely confined with a shoe-lace. He left a small

of heat and sunlight

aperture at one side through which he could drop other minnows as he chose them from the willow and alder shaded spots along spring branches where the water had formed small pools a couple of feet or more deep.

"A chub should smell as fresh as the run water it comes from." Ivens contended. "And don't have too many in the pail at a time. They have to be perfectly fresh to get smallmouth bass to take them right off the bat!" Maybe he was too particular. But he was an expert at catching smallmouth bass with a nine foot fly rod and a light leader and forged steel hook of size 1/0. He preferred to use a good fly line also. I've watched him demonstrate it often when it was so hot the leaves on the alder brush along the pools would be rolled up tight like a cocoon cover.

He insisted on fishing near small, clean spring runs. He wasn't too particular whether it was above or below the mouths of such runs. But he never used a chub that came from any other run than that near the pool. He carried that light, gallon pail, perfectly clean, a minnow hook and thread line used either the head of a grasshopper or a pinch of worm to fool a few of the biggest chubs in a school to rising quick and grabbing the allure as he eased it down from his concealment back a few feet from the brink. Another thing, he insisted on was the chub should be almost exactly five inches long.

When Ivens fished a smallmouth bass pool he used some concealment. Perhaps he was too critical of casual methods. I can't say, only he caught

big smallmouths and taught me to find them with flies and plugs also, by using about the same general style of fishing as he practiced with his run-scented chubs. I have found it works with a fly, or a plug, following his system of fishing in the brightest part of the day, when it's hot and the water is evaporating in a light halo with a bit of warm wind. The screen seems to help, although one doesn't have to entirely fish in the screen, but near it.

On a very hot day in harvest season there's generally a breath of air stirring and to get the maximum results it's a good plan to fish against this breeze, so that it drifts the fly or the bait to the rod tip. As Ivens

worked it this was an exact bit of fishing science. The more exactly it is done the better!

The matter of concealment was a particular phase of his system. He never fished "bare" as he put it. A willow clump or an alder growth along a stream was exactly suited to his plan. He preferred the screen he fished from to be low enough so he could cast over it and let his baited hook reach the water where the light was warmest, but with that slight mist of evaporation hazed against a shadow of brush, weeds or grass. This all seemed to be important. By following it I have taken some of the best smallmouth I have met.

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Catfish

Calamity

By THAD BUKOWSKI

Dad was MR. CALAMITY for catfish! Two hundred pounds of red-moustached contentment with the flavor of pipe tobacco wafting behind him, together we'd go catfishin'.

IF YOU'VE ever seen the yellow bellied bullhead in its spawn along a cattailed shore of a lake you've also realized a definite sense of anticipation. For when the myriads of small catfish fry begin swimming among the weeds in a mass of a thousand or two, blackening the water around them, with their protecting parent nearby, then you know it's catfishin' time.

The fishing seasons I followed as a youngster were primarily four, all centered in or around a shallow vegetated lake. We began by fishing for suckers from January almost to April in the run that emptied into the lake, and followed by wading barefooted in the ice cold April water for panfish with our long twenty-five cent bamboos that we'd bought at Huston's Hardware and No. 8 black thread that we took from our mother's sewing kit. Then we'd go on with catfishin' in late April, May, and June, and finally finish out a busy year chasing whopper bass. I've had my share of fun with all of these, and also trout, and if I were to choose one season in preference to another I couldn't for they were all so particularly interesting at the time at which they came.

I certainly enjoyed my dad's fishing for cats more than I enjoyed seeing him fish for anything else. For as the catfish is deliberate in taking the bait, swallowing it, and then lazily and contentedly travelling off, so was he as deliberate in permitting the cat to do so, always feeding line off his reel until it was nearly empty before he attempted the haul shoreward with his long and crooked bamboo. Needless

to say he caught more cats than did I, though I caught my small share too, including a giant thirteen pounder. But as a youngster too often I was feverishly eager and would yank the bait out of the fish's mouth before it had a chance to swallow. Dad was a catfish's calamity on the other hand, for he let them have it until they swallowed the bait completely, while I'd only give them an appetizer letting them barely taste it before I too eagerly yanked it away. Because he gave it to them as a main course before he in turn took over to show them just who was boss, netted him many more cats than for me.

The earliest remembrances of my fishing come to me when I see myself always in the company of my picturesque father waddling his 200 pounds of red-headed, moustached, contentment along the road, with the flavor of pipe tobacco wafting in the air behind him, and my brother Stan and I tagging along, like two stray mavericks, I generally a few steps in the rear of the other two. Dad certainly had an affinity for Velvet tobacco for the scent was always around him.

We'd pass orchard trees on our way to our favorite lake and often sneak an apple or a pear from those on the ground to gratify a youngster's hunger in the heat of the day.

Catfishin' was a special sort of fishing. Often I've heard of the different types of bait that has been associated with their indifferent desires, anything from liver or stale shrimp to chicken entrails. Our fishing was done with what seemed to me to be bait more adequate, refined, sensible, and probably to the cat's way of thinking more palatable too. Though we caught bullheads on a variety of bait, primarily we used two: the night crawler of which we'd engage two or three on a hook to make a sufficiently large

wiggling morsel. Or more often, whenever we could, we'd feed them the soft-shelled crawdad.

There seemingly is nothing the bullhead relishes as well as the crawdad. The fish often takes a "pealer" which is what we locally called a crawfish that hadn't yet shed its skin. In using these the fisherman can peel the skin quite readily, under which will be found a very delicate new membrane. Often the "pealer" dies as a result but it doesn't matter because, if anything, the cat, in its none too discriminating appetite seemed even to prefer those that had already passed away.

My brother and I would accompany my dad crawdad catching. He became quite a phenomenon along Penna Avenue where we spent our early life in New Castle, either waddling into the water or out for bait at various parts along the road which paralleled the creek, Big Run by name. There was much jovial banter on the part of the neighbors at his antics, especially if he had somewhere along the way lost his footing and fallen into the shallow water. To the wet seat that resulted they'd often taunt:

"Hey, Stanley, that's what you'll get tomorrow, too! A wet seat and a hungry gut!"

But pappy would look at them, point to them with a chubby index finger, and never saying a word on occasions such as these, spread a wide grin across his broad face and violently crank the same index finger around his ear to indicate the state of their senses, then walk away. I couldn't tell who was insane at the result of these antics but I did know that it was all part of the general run of fun we were having.

With a basket of crawdads all nicely nestled in stray wisps of wet grass and clover, we were ready for the

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MORE than twenty-five years ago, two expert fly fishermen rested along a creek bank in northern New Jersey, ate sandwiches and bemoaned the fact that brown and rainbow trout seemed to be feeding on everything except their varied assortment of wet and dry flies.

These two men were Arthur K. Neu of Newark, N. J., who later passed to his last reward and William L. Swain, now of West Grove, Pa. After another two hours of fishing on that spring evening, both men agreed something should be done about the leaders which fishermen used to present flies and other lures to their favorite game fish.

"Someday I will figure out a 'silver platter' from which those trout will take flies," Swain vowed, as darkness forced them to load their equipment and head for home. Both men had observed that day, how the trout would rise to within 3 or 4 inches of their flies and then quit. As long as Neu lived, they made many fishing trips, held conferences and compared notes after using various types of gut leaders, dyed in all colors.

It was not until 1931 that Swain

color of a stream or lake was due to rebounding elements of light off the bottom. A simple test can be made to prove this, for a glass of water from a brown, blue or green stream will be perfectly clear.

Having studied the reaction of light when it penetrates fishing waters, Swain, up to this time experienced most successful fishing when using gut leaders dyed dark blue or green. Due to its heavy grain, the porosity of Spanish gut enabled the dye to wash out very fast, so that the natural opaqueness of the leader returned to make it appear larger in the water than it really was.

After experimenting with nylon for a couple of years, Swain was convinced the material had the tensile strength, total lack of deterioration, and could be tied to lures and flies in its natural dry state but the lack of pores or grain made the dye problem for permanency seem an impossible feat.

After dying a considerable amount of nylon, Swain discovered the best penetration, which could be achieved by known dye processes, was merely



BILL SWAIN, ardent angler, claims Conowingo Lake, Susquehanna River is finest smallmouth bass fishing grounds in the eastern United States.

of the dye began. One coil of this dyed material was subjected to 180 days in the sea without losing any dye, this same coil was exposed to 180 days in the air, rain, snow, sun and ice with the same result—no fading.

From this point on the problem of making fade-proof nylon was merely a mathematical one. The proper dye process had been achieved and in spite of the fact that controls had been fully established to maintain density of

"A New Silver Platter"

learned the scientific facts about the relation of light to the appearance of leaders in fishing waters. Immediately he began to search for a suitable material to create a leader which would be of practical use and invisible in appearance when immersed.

Before his dream of an invisible leader could be realized, chemists at the DuPont Company had to create many achievements. A Dupont scientist came up with nylon and Swain recognized the many features of this material would make it ideal for manufacturing leaders, if it could be dyed to provide a light channel through the material for rebounding elements in the light rays.

For as many years as leaders have been made manufacturers, who dyed their material, told fishermen the leaders were made to blend with the water. Most fishermen know there are only two colors of water, clear or muddy. Swain had long known the

By KENNETH W. THOMAS

a paint job, that is, the dye was on the outside of the nylon.

Then he began a series of unorthodox dye procedures. Each time he came a little closer to getting total penetration of the nylon material, which, to be effective as leader material, must not be damaged in any respect.

One day while dye-processing a quantity of nylon and using an ingredient used by dye makers almost 100 years ago—when logwood dyes were the only type available—Swain discovered by microscopic inspection that the dye had passed all the way through 40 pound test nylon leader material.

Now the tests to try the permanency

color, and to protect the material from being damaged while being processed, exposure and tensile tests are constantly made. A 10 yard coil of mist blue nylon, which has been under water and subjected to sunlight every day for four years has shown no signs of fading or lost any of its tensile strength.

Since he took that first fishing trip with his father when he was five years old, Swain has been a fisherman and today is accredited as being an expert in the handling of nylon.

He is affectionately known as "Bill" to thousands of fishermen throughout Pennsylvania, New Jersey and other east coast states, where he spends leisure time hunting game fish in fresh and salt water, using the lightest tackle available.

About two years ago Swain solved the problem of using heavy nylon monofilament line on conventional sea

(Turn to Page 30)



Mr. Wallace C. Dean

New Member of Pennsylvania Fish Commission

On May 25, 1953, Governor John S. Fine appointed Mr. Wallace C. Dean of Meadville, a member of the Pennsylvania Fish Commission, and on June 8, 1953, the Pennsylvania State Senate confirmed the appointment.

Mr. Dean hails from Meadville, Crawford County, where he was born and where he attended school. A life-long fisherman, Wally has been constantly active in Sportsmen's circles. A member of numerous clubs, he has represented the Northwest Division of the Pennsylvania Federation of Sportsmen's Clubs before State Conventions of that body in Harrisburg.

A successful businessman, Mr. Dean is the distributor for the Kendall Refining Company of Bradford.

EROSION

CREEPING PARALYSIS

(From Page 5)

already done. He can support the Soil Conservation Service and other agencies that are leading the nationwide fight against erosion. He can spread the message of erosion control and tell others what is happening to our streams and lakes. He can enlist farm friends in the movement to keep their mud where it should stay by sound farming methods.

Finally, he can take a hand on his own, too. Sportsmen's clubs in some states are pushing stream improvement projects, joining with farm groups to restore watersheds already sick. A

group of trout-fishing friends of mine has set aside a week-end each month from spring to fall for building wing dams in the stream where their camp is located, planting willows along the caving banks and otherwise battling the sand that has covered the bed and choked off their fishing in recent years.

If you, as a fisherman, really want to do something to combat erosion you will find a way to do it! It all boils down to one thing. What we must do, if we are to have good fishing, is keep the soil on the land. The farmers need it, the fish don't!

SHORT CUTS TO EASY CAMPING

(From Page 9)

We always carry in our car an old-fashioned, cast iron Dutch oven with a bail. This type has been the standby of the cattle range for years, and was also used for cooking in fireplaces in early days. It should not be confused with the so-called Dutch ovens with pyrex tops which are currently seen in many hardware stores. The true Dutch oven—called a spider in some sections—rests on three short legs and has a cast iron cover with an upturned flange around the edge for holding coals while baking. The three legs hold the oven a short distance above the coals, thereby supplying good even heat to the bottom of the biscuits, bread or meat being baked. Its uses are not restricted to baking, either, as is the reflection oven. Instead, it will serve for frying fish or meat, and it cooks hot cakes much better than a thin frying pan. A wood that produces good cooking coals is used. Oak, juniper, hickory, are very satisfactory.

When the coffee has boiled the required three minutes, several theories for settling the grounds are advanced: throw in a dash of cold water; drop in some green leaves; toss in an egg shell. However, the easiest and best procedure is to place the pot near the fire and let stand for a few minutes, allowing the grounds to settle, then gently pour off the coffee. The old-fashioned coffee pot, with its spout and handle, is picturesque and may be romantic, but it has no place in today's camping gear because of the odd shape and bulk. Far more satisfactory for coffee making is one of the kettles in the nesting kit.

After the coffee has been measured and the kettle placed on the fire, the largest pot is then filled with water for dishwashing. Not only will it be hot when needed, but in cold weather it will keep food warm during the meal if the plate is placed over it.

Paper products, such as newspapers, paper bags and towels, can make camp life pleasant for the week-end. Not only do newspapers start his fires, but they save time and help to keep his gear clean. A couple of thicknesses spread upon the ground beside the cook provide a clean place to work and keep utensils and chuck-box out of the dirt. This is especially true on damp and sandy earth or along the lake shore. Related to the newspaper is the large paper grocery bag used for carrying away cans and other refuse that is not burnable. This leaves an uncluttered site for the next camper. Paper towels are easy to carry and use. Some are tough enough to be used for dishrags. Paper plates, unless of the new waterproof variety, are practically useless. Newspapers, paper towels and paper plates are tossed upon the fire when they have served their usefulness, thus keeping the campground clean.

Water and its transportation pose a modern day camp problem, resulting from the pollution of many lakes and streams in the United States. For a two-day trip for two people, five gallons of water will suffice, and with a bit of hoarding it can be stretched through three days. We have used three types of containers: (1) the five-gallon glass bottle in which distilled water is sold. This is difficult to handle whether full or empty, and there is the ever-present danger of breakage. (2) The five-gallon can sold for storing gasoline is far more satisfactory, but it is also unwieldy. (3) We have found that two cans 12 inches square and three inches thick, made of stainless steel, holding 2½ gallons each, pack better and are of more convenient size for daily use.

Chuck-boxes, nesting cook kits, vacuum bottles, bent-nose slip-joint pliers, Dutch ovens and stainless steel water cans make life about camp easier, but the handiest gadget of all is a wife who is also interested in camping. She mends the tents, makes the cutlery roll and cook kit bags, and does the cooking and a thousand and one other things—while you fish!

KILL LESS

CATCH MORE

MAD MUSKIES

(From Page 13)

ing it from becoming entangled in underwater snags and roots.

Cast the bait into all likely areas, and especially into those places where you have seen muskies. Better still, allow the bait to swim at will around these spots. Always keep it moving. Not in the sense of casting and retrieving, but give it occasional jerks. Try to keep your bait alive.

The strike of a musky on a live chub is nothing like that on plug just beneath the surface. It is slow, deliberate—almost leisurely. Here again it's a case of virtually losing interest when slowly the bobber moves down and away.

Generally the fish will not carry the bait too far. A long initial run usually means a small fish. But there are exceptions and in any case you should be prepared to feed line easily and without drag. At this point you had better be a patient angler, for after the first run stops, you probably have a long wait.

Just what takes place down there in the water is uncertain. Some say the musky turns the bait around to swallow it head first. Some say he scales it for better digestion. Whatever it is, he's in no hurry about it. Nine times in ten, to strike before a second slow run starts is to lose your fish. Wait him out and then hit him hard. Real hard.

For all the labor and drudgery involved, musky fishing in the meadows can be as restful and contemplative during the dull moments as it is hair-raising when the action begins. It takes you afield in early summer when delicate flowers carpet the stream banks. If luck is with you, you will have fleeting glimpses of wood ducks with a brand new brood of ducklings.

To play this musky game for all it's worth, you'll be on the stream in autumn when the atmosphere is like wine and the color is fantastic. Your chances of a trophy will be the very best, too, when you have to wear long underwear and an extra woolen shirt.

Neither time nor time of day means anything to muskies. Perhaps they are active at night. I've never fished for them then, and have never known of anyone who did. But generally, dawn

is no better than dusk and a strike may come at noon just as often as either of those. One fact is worthy of mention, though, and that is a preference for dingy weather.

In thumbing back through my fishing diaries, I notice many references to the dull days with overcast skies and a persistent drizzle. Muskies seemed most active on these occasions. Here's a sample. "Nov. 4—Shade R.—missed (my) only strike at about 9 a. m.—light rain all morning—Herman Davies hooked musky (while) standing on deadfall, dropped (his) gaff in water, slipped off and lost fish."

That incident reminds of something besides the weather. If you plan to get into this musky fishing seriously, carry a large landing net or a small gaff. The fish are hard to handle, especially if you are casting from a steep bank. Except for boat fishing, a landing net is too awkward to be practical.

These meadow muskies have one more bad habit. We've saved this until last so that you would read the whole article. Maybe you've heard how muskies will follow a lure time and again. Perhaps it has actually happened to you.

You cast over and over. You change lures. You change retrieves. Every time, the musky follows your bait almost to the boat or bank. He seems

to glare malevolently at you for a moment and then slowly sinks out of sight. But he will not strike. Nothing in all the outdoors is so exasperating. Nothing is so frustrating.

But I have a solution. Collect a can of catalpa worms, crickets, or grasshoppers. Find a nice creek or lake somewhere—and settle for a mess of panfish.

REEL OIL

(From Page 19)

we experience in Pennsylvania. Once the oil has been blended, it will remain perfectly fused even if used on reels in storage at temperatures 60 degrees below zero. At low temperatures the oil becomes a light lubricating grease which will return to its fluid state and in perfect condition when temperatures rise to normal.

Only a very thin coating of the oil will remain on the metal, but it will not evaporate and will protect the reel not only from humidity, but from salt water, salt air, fog, dew, rain and snow. The angler wants an oil that has perfect surface tension and will adhere



absolutely to the metal, thereby preventing water from creeping under the film of oil. Such an oil permits smooth casting and will also protect the parts from rusting.

A cloth moistened with a few drops of an oil that does not evaporate and is not combustible, can be used indefinitely. It is interesting to see how these few drops of oil will spread through the cloth. Rubbed on reels, ferrules, "hinges" and rim of collapsible landing nets and other metal equipment, the oil will remain as complete protection against rust and corrosion.

The use of a good oil on reels cannot be stressed too much. Only the smallest amount of a superfine oil is necessary to lubricate and protect, which means that a good oil is the most economical oil that can be used.

CATFISH CALAMITY

(From Page 24)

fishing trip. During warm weather we'd have difficulty keeping our crawdads alive and we experimented with various methods trying to keep them vigorously fresh, but nothing could help out—their weakened condition as a result of their skin shedding made it difficult to do anything on their behalf. They just had to be handled gently, and if they died, slowly moved along the bottom to imitate the real thing.

Often someone would tell us a favorite cure or care. "Throw some salt on them, that'll keep them kicking!" someone once said. And it did! They kicked off as soon as they were salted. The one time we tried this mistaken notion the crawdads died almost instantly.

Our fishing began just as the sun peeked over the horizon. The enfoliating trees, the happy flocks of birds in this mating season of spring, even the mud we tramped at the edge of the shoreline helped in making us aware the world was "all right."

Sometimes we would have only two or three hits but even this might net the three of us a sizeable combined catch for the pan. And cat fish of course were a delicacy.

It would happen something like this. Being gregarious creatures by nature

three or four fishermen would get together for a bull session, meanwhile watching their lines. The lines would be out around some weed patch or near the cattail bed and a quantity of loose slack line would be settled between the ferrules and on the ground. In the midst of some deep discussion, usually of the three most important topics in the world—religion, politics, or women—a fisherman would yell to another:

"Hey! Your line's going!" Then began a frantic scramble. The fisherman whose line was reported to be running would dash madly through mud, grass, and cattail weed, slosh to his pole just at the edge of the water. Often he would slide into his rod on the seat of his pants after losing his balance in the slippery mud and finish out the exciting scene upended with mud and water, everyone around him hilariously cackling. But shortly all would be tense and quiet. For the cat like many fish would first take the bait, mouth it, and often drop it. And just when you figured you'd made your rush and got wet for nothing the line would go again and this time with no uncertainty. Slithering out, all your slack would go and then you'd feed some more off the reel. When you decided you'd given enough, yanko!

Don't let anyone kid you. A catfish of size can certainly fight. The fight is a vigorous, spirited, dogged, mutinous underwater battle and generally ends with a gasping choking bullhead flopping around on the bank, for most of them swallow the bait and the hook if given enough time. Even when it's in though, be wary for the cat can inflict the most painful of cuts. We've found that the best way to handle them is to carefully put the palm of the hand back of the head, ahead of the dorsal fin with the first and second finger holding the fish on each side of one pectoral fin and the thumb holding the fish ahead of the other pectoral fin. In this manner, wiggle though they might, they do it harmlessly.

Sometimes a cat will hit bait in a quite lively manner, but occasionally they'll obstinately refuse to bite just as any other fish. We've found from our fishing early morning and late evening are the best fishing times and the spring the best cat season. However, this isn't the general rule without exception. Once my brother and I caught seven large cats totaling a good twelve pounds about midday in about twenty minutes of fishing.

So take your choice. In any event take an occasional jaunt to a catfish

haunt. Try a weedy lake, and if it holds largemouth bass and panfish then its sure to have its share of catfish also, for all these fish generally live in the same habitat. You may even be surprised with the action that might take place.

I remember one day when I went to such a lake for bass. I was using large minnows for bait and after fishing for some time without success with my flyrod I suddenly had a strike. I yanked, my fly rod doubled and I knew I had a portly fish. I had quite some trouble—and fun—getting the fish to the boat, had to play it for some time. When it didn't rise to the surface I got suspicious, but I certainly wasn't dismayed when I landed a three pound cat. It had put up as good a fight as any bass I'd ever landed of similar size.

Catfish are a tasty eating fish. Their white sweet meat when taken from the pan is a delicacy indeed. They have few bones other than the main skeleton and together with their sweet meat compete with the best tasting of inland fishes.

A fishing jaunt for the cat provides excellent entertainment and a stray grandpappy with whiskers that could scare the daylights out of you, might be potting around just waiting for you to throw in your line. Give it a try!

VIRGIN RUN LAKE DEDICATED

(From Page 2)

mission tank trucks of black bass, catfish, bluegills, and perch. The Pittsburgh Casting Club, consisting of George Blackstock, Bill McConaughy, Ray Galla, Sid Neff, Wayne Shoemaker, and Jim Vaughn, gave a fine performance in the art and accuracy of both plug and fly casting. Hundreds of persons lined the shores of the new lake which was thrown open to fishing immediately following the close of the program. James Banning, Fish Warden for Fayette County, said, "officials never dreamed of such a tremendous crowd. We expected quite a few fishermen, but the mob that turned out was really something. It's going to be quite a spot, and all we ask is that the fishermen be good sports in their use of the lake's facilities."

SMALLMOUTH OF HEAT AND SUNLIGHT

(From Page 23)

The average angler seems to be unaware of these points of procedure. Generally a hot day is considered unsuited to fishing for any species of game fish, and in the most intensely hot part of the day the average fisherman chooses to stay off the stream or the lake. This is a defeatist attitude. Those intensely hot parts of a summer day are far superior to the cool periods—in summer, I mean! Any place from one o'clock to three is the preferred time to fish for smallmouth according to my old friend and tutor. He baited his chub by the ancient process of hooking it through both lips and insisted that the less it was handled after bringing it out of the freshened pail and cast, the better for all concerned! Another feature he propounded was to use no sinker at all.

"It's natural," he propounded, "that a smallmouth bass does not expect to see a tempting minnow swimming about with an ugly hunk of lead dangling from its lips and the lighter the terminal tackle can be arranged, of course, the better!"

That was the reason why he preferred a fly rod. It was delicate in the tip action, gave the chub a vibratory spring that kept it moving about. Without a sinker of any kind the chub swam its natural way into those spots where it was cool. The minnow actually sought out the location of the bass, by natural instincts to frequent cool, fresh water.

"Learn those little tricks o' these creatures and you get on the same level with a cunning old smallmouth, see!" Ivens would grin.

After I had fished with him a few seasons using run chubs I began to see what he did mean.

Talk about smallmouth bass being scarce or "not in the mood" is erroneous, many times greatly exaggerated. The trouble with so many anglers is they are not capable of judging where these fresh water gamesters lurk and the types and conditions of water they prefer by their own strange preferences to haunt and hide in. By fishing with the chub one learns such things. I have often watched Ivens and pondered his patience and tenacity in

fishing. But when I saw him take bass out of creeks and even mere rivulets where other fishermen would scorn to drop a fly or a baited hook, I realized he did not come by his skill through mere accident, but by sitting there, back of his screening brush blinds, on the hot sunlit stream bank scheming all the angles of his pastime from the actions of his fresh caught run chub.

"Now, take the actions of the chub when it senses danger," he often said. "It's surprising how a chub taken from a spring branch seems to have sharper reflexes than one that comes out of a stale puddle in some creek. It's because they are wild, I suppose! There's something about cold, sweet water that seems to endow them with superior senses of wariness, and that's one reason why a good fisherman likes them best.

"The moment a smallmouth comes within their range of senses these little savages instantly start looking around for a root under which they can slip away or a rock shelf or a cleft under the bank. With a delicate leader, a floating line and a sensitive fly rod tip this alarm can be immediately picked up by the fisherman. And a smallmouth favors them above most everything. They have that scent of the run on them. It's something like water cress and spearmint all blended together that's enough to drive one o' them fancy perfume distillers wild to try to duplicate. The old smallmouth can smell it, no doubt, yards away. And when it comes slipping out from under the shady willow roots where it has been sulking all afternoon and strikes that scent, it almost drives the old fellow frantic. That's when the chub and the bass start trying to outwit each other. And that's when the wise fisherman is up against one of the most delicate bits of angling there is to face, knowing signs of a bass approaching the minnow?"

My good old friend always placed this form of bass fishing on a plane with the most expert of dry fly fishing practices. He has parked in the hot harvest weather sun too long to not know all the symptoms of a chub being attacked by a hungry smallmouth bass, has coached me on how to recognize this critical moment.

The chub will start a nervous activity, try to gain some sheltering place. But the attempt seldom succeeds, for the smallmouth is too quick for it. That scent of the clean spring fed run chub lures it to the minnow

fast, takes the bait as delicately, as an epicure of fine food would first daintily sample a choice morsel. It is then the leader telegraphs the bass has caught the minnow and it swims about usually in a circling manner through the bright, warmed areas of a pool, and, finally, starts for the shade of a willow or an alder shore line or the shelter of a drift or submerged rock. And then, smiled Ivens, "is the time to snub with the fly rod much the same as with a dry fly or a wet fly when the bass rises to take the lure!"

I have always remembered those lessons Ivens taught me on smallmouth bass and clean, prime run chub fishing. I believe many anglers who stumble and falter in their understanding of this supreme form of fresh water angling—smallmouth bass fishing—would be better able to grasp the real fundamentals of such fishing if they would take a season off and do like my friend, Ivens, so often said, "just find a nice clear creek that has fresh spring runs feeding into it, or a river with good clean water and bright currents that has brooks and fresh feeders entering and sweetening its flow, then pick out some good pools located close to the sources of minnow foods, quietly sit down there, bait up with a proper chub and take a few good lessons in fishing from those two redoubtable characters of such spots, the chub and the smallmouth bass, in scientific angling!"

Yet, under the trees, my fishing friends like to linger, saying that it is "too hot" for the fish to bite or rise to a lure. I think that old alibi



"I'd like a musk perfume from a muskie—my boy friend's a fisherman."

was coined by someone who knew very little about the smallmouth black bass and its habits in our creeks and small rivers.

LITTLE LURES FOR LARGEMOUTHS

(From Page 21)

do your fly rod work on bass during the day.

A cast to a rising bass is almost identical to a cast for a rising trout. There the similarity in technique ceases.

The lure should not be moved until all surface ripples have quieted from the splash as it landed. Even then, it is well to wait 20 seconds to a minute before moving the lure . . . then simply twitch it a bit. Be prepared. A large percentage of your strikes will come at this exact moment.

If nothing happens, though, let it lie, then twitch it again. Repeat the process several times. If you don't get results after the lure has traveled several yards, make a new cast in the same spot if it still looks good to you.

Most anglers who fail with the fly rod surface lures do so because they simply do not have the patience to work the lure slowly. And yet, they have only to make an easy study of the sunfish, close relative of the bass, to see what happens at the other end of their line. Drop a bug or fly over a sunny, watch him come tearing up for it, slam on the brakes, study the bait thoroughly, then snatch it from the surface in a flash.

Bass react in the same manner normally, but let another bass threaten to cut in on the meal, and your lure may disappear almost before it touches the water. (The sunfish will do the same thing.)

There are fellows who fish two fly rods at times, casting their surface lures on either side of the boat. Then they take turns twitching the lures occasionally in an effort to stir up some action. Get it too, sometimes. But this is a rather lazy approach to the sport.

There are always exceptions, of course, and sometimes it pays to throw the book away when the fish won't strike. On such occasions, several false casts right onto the water in the same spot may stir up action when you finally allow the lure to lie. This

usually works best over muddy or heavily colored water. Or, if using a popper, make as much commotion as possible right where you think a fish might be lying.

The theory behind this one is in the belief that fish do sleep, but few of them sleep soundly enough to pass up a bite to eat when their attention is called to it.

Most surface lures work best when they are partly submerged. This is especially true of the hair frog which has a tendency, because of the hollow deer hairs frequently used in its construction, to float lightly on top. The frog should first be soaked in the water by hand before being cast to a bass. Frogs don't normally go skitting across the water, they swim in it.

Need for a line that floats well becomes obvious if you accept these methods of fishing fly rod surface lures. A line that sinks will pull your lure under on the first twitch. Long casts are impossible as the water sucks at your line on the back cast, and it is not uncommon to have the lure smack you in the face when it finally pulls free.

Since you are using a considerable length of line, keep it looped in your free hand or let it lie on the water near the boat as you prepare your cast. Otherwise you will be continually stepping on it and grinding in dirt that will soon ruin it.

No more than two fly rod bass fishermen can share the same boat safely. These two fellows should develop a signal between them so that each is aware of the other's intentions at all times if they are both fishing. It is a good practice to take turns at the oars with only one fishing unless both are accustomed to fishing together.

Except when there is obvious activity over deep water, your best bet

every time for largemouths will be right up against the deep shore in weed pockets, and along underwater obstructions such as stumps and brush. If there are overhanging trees, try to get back in under them. Sometimes a distance of two feet may mean the difference between a strike and just another cast.

If you connect in one of those out-of-the-way places surrounded by brush or plant growth, try to start your bass toward you while he is still on top. When he finally gets his tail dug into the water, you may not be able to hold him. This is another important reason for using a fairly heavy leader.

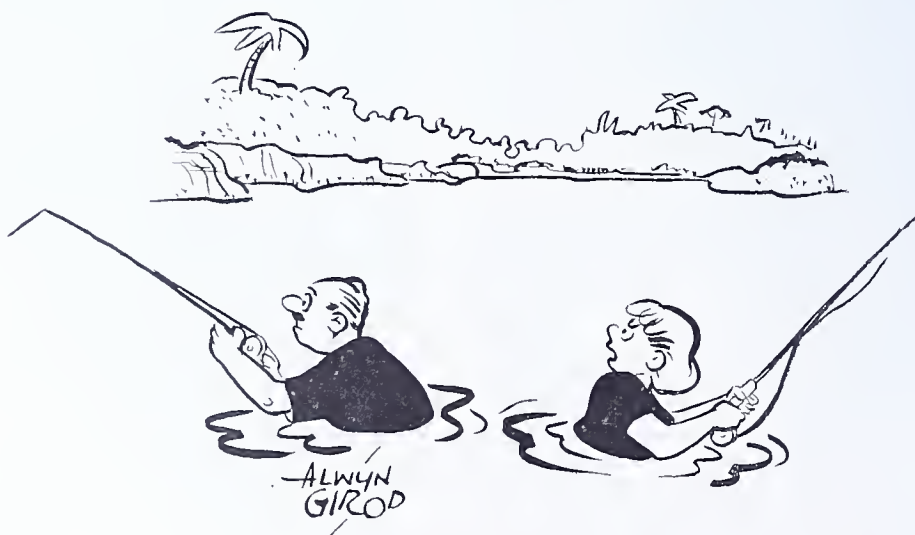
And, don't ever let anyone attempt to convince you that these tiny lures won't take big fish. The biggest bass eats the most, and you are in for some of the finest in sport possible if you are there at the right time with these little lures for largemouths.

NEW SILVER PLATTER

(From Page 25)

reels, so the reels would not be damaged. This information has been passed on to fishermen through sporting goods dealers.

So a Pennsylvanian has achieved another first—making nylon not only fade-proof, but fishing leaders invisible in fishing waters—A new "silver platter" has been created to help all members of the Izaak Walton tribe to fool the fish.



"Bite or no bite—it's time to bail this boat out!"

PENNSYLVANIA ANGLER

The Editor's Angle



TWELVE WINNERS of Ridley Park Lake Rodeo holding their prizes of rods, reels, lines, tackle boxes and other angling equipment.

Ridley Park Lake Rodeo a Success

Chairman George E. Campbell, of the Ridley Park Lake Fishing Rodeo reports 249 registrants, boys and girls between the ages of 3 to 15 years. The lake was stocked by the Pennsylvania Fish Commission prior to the contest.

Nice prizes from glass rods to fishing tackle boxes were awarded the winners with some 62 fish caught.

Judges were chief of police, George T. Smith, Frank Taylor, John Bonnes, DeWayne and George E. Campbell. This was the first rodeo to be sponsored by the group.

The Hellertown Sportsmen's Association scheduled a kiddies' fishing contest on Sunday, June 7, to be held along the Saucon Creek. Age limit for the young anglers was set from one year to 15 inclusive. Prizes were to be donated from local groups.

AUGUST—1953



Three-year-old Jimmy O'Neill, Jr., with a prize winning carp, also proudly holding his prize, a steel rod, reel, plus 25 yards of fishing line.

Dear Editor:

In the June 1953 issue of *THE ANGLER*, Mr. Erwin A. Bauer has a noteworthy article on "Spinning was Made for Carp." However, I wish to take exception to a statement in the 4th paragraph in which he states "You'll fish a lifetime before you take a carp on any type of artificial lure."

While fishing the Conewango Creek near Warren, Pa., this bass season using a spinning rod and gold Russell lure I hooked a very large carp, played him for 15 minutes. When he headed north he took all my spinning line and backing plus the lure with him.

During the same week I hooked and again lost another large carp on an F-7



NICE BROWN trout 28½ inches, 9½ lbs., taken on worms in the West Branch of the Conococheague Creek near Willow Hill in May by Stanley Steck of Willow Hill. Stanley Hawbaker took the photo.

frog finish Flatfish. I had this fish in shore when my 6-lb. test line broke.

In another instance several years ago I hooked a 10-lb. carp on a black nosed dace bucktail and landed it using a 4 oz. fly rod. This was in the Conewango Creek at the North Warren dam where I have, on occasions, hooked into large carp while using flatfish. In the Allegheny river I have also taken hellbenders or mud puppies on flatfish.

A friend of mine also lost his favorite plug in the river on a carp which was too big to handle. I wish some summer, Dr. Gordon Trembley, would see fit to have one of his crews pull seines in our bigger river eddies and throw away all the carp caught. All this of course in the hopes the bass would improve as a result.

It is a question whether the biggest fish in the Allegheny are carp or muskies and I am inclined to favor the carp in this respect.

Spinning lines are perfect for bass and carp up to 10 pounds but if larger carp take off up river with your light spinning line it is ashes!

WILLIAM HIGHHOUSE

Warren, Pa.

Dear Sir:

I'm sure enjoying reading my PENNSYLVANIA ANGLER magazine. It's the best one dollar investment I have ever made for anything on the subject of fishing. You are doing a good job . . . Keep up the good work.

Will you please write up a short article for me and run it in the "Editor's Angle" asking your readers to please send me their best carp bait recipes—carp locating and catching techniques? I will sincerely appreciate any and everything I receive on Mr. and Mrs. Carp and family.

CLARENCE FERGUSON

Martinsville, Virginia

Will you readers please try to give Mr. Ferguson a good list of recipes and information by writing to him at 32 East Main Street, Martinsville, Virginia.

Berks Co. IWLA to Hold Annual Field Day

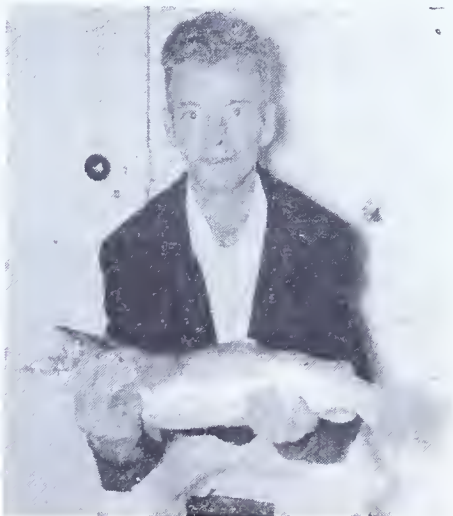
The Berks County Chapter, Izaak Walton League of America will hold their annual field day and sportsmen's family picnic on Sunday, August 30 at the South End Gun Club headquarters. The site is at Lorane, a few miles southeast of Reading on the Philadelphia Pike.

A full day of sporting events are scheduled including trap shooting, rifle shooting, pistol shooting, mo-skeet, fly

►Carl Harrow, Jersey Shore, Pa., is credited by local groups with catching the largest brown trout ever taken in Tioga County. The monster was 31 inches long and weighed 10 pounds, 11 ounces, taken in Pine Creek above Darling Run on a spinning outfit.

casting, plug casting, surf casting, bingo for ladies, games for children and a bow and arrow contest, all open to the public. A special event, Jim McDevitt, Shamokin sharpshooter will give a demonstration of fancy rifle and shotgun shooting.

No charge for admission to the grounds with plenty of free parking space. Lunch served on the grounds. Charles R. Bersen is publicity director for the Berks Chapter IWLA.



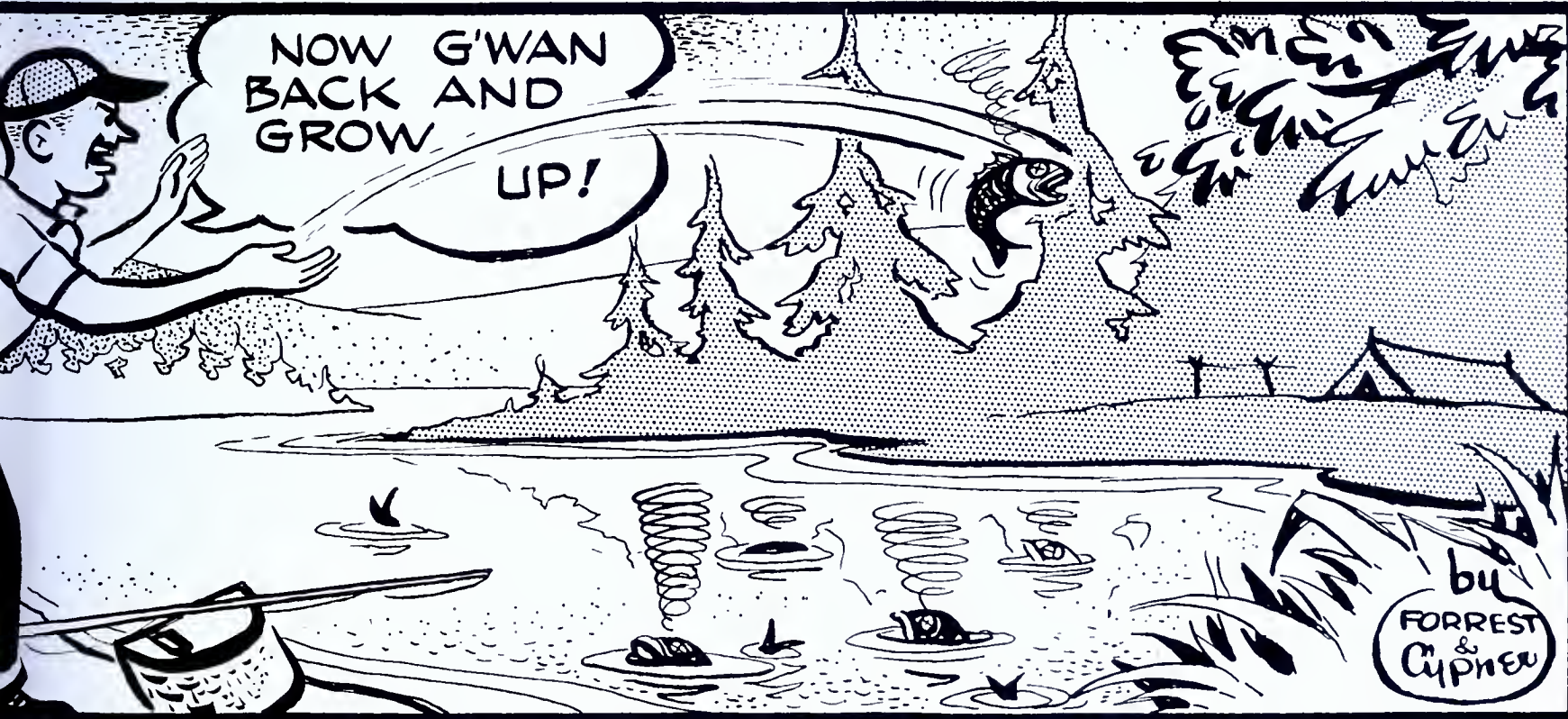
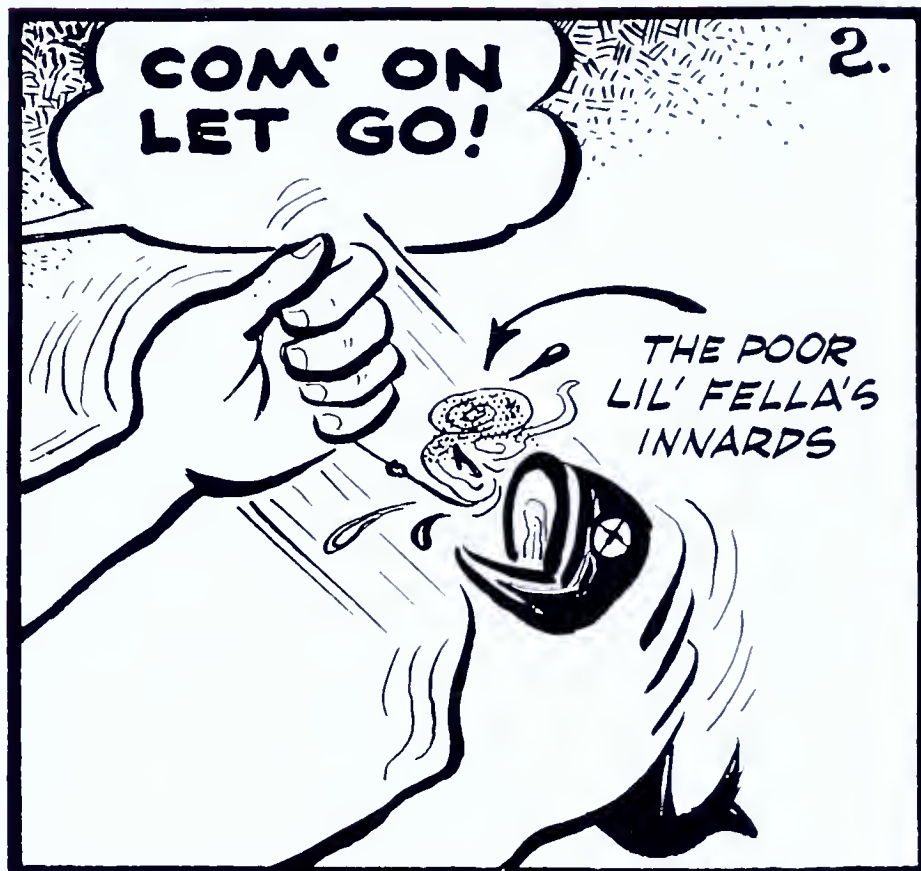
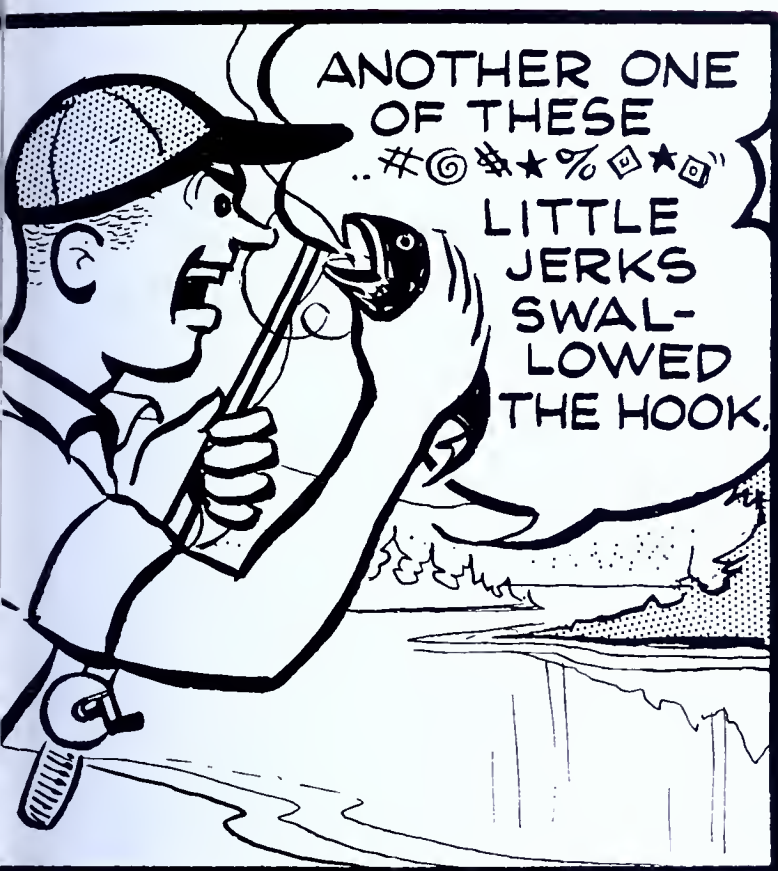
John A. Johnson, Jr., West Hickory, Pa., is holding 23-inch brown trout he caught last season on a wet fly in Hickory Creek. Snapshot was sent in by Adam Socher of Blawnox, Pa.



"Hey, Elmer,—don't you think it's time to take off that deep running lure?"

PENNSYLVANIA ANGLER

How to Ruin Good Bass Fishing!



SEE PAGES 6 & 7 FOR THE CORRECT WAY TO RELEASE AN UNDERSIZED BASS

LOSE A HOOK — — SPARE A BASS



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PENNSYLVANIA ANGLER

1953

OLD COVERED BRIDGE ■ NOISY FISH ■ BAIT VS ARTIFICIALS ■ CRAYFISH
WOMEN ANGLERS ■ FILLET YOUR FISH ■ HARVEST BASS ■ WATER DOG HUNT



—KENNETH O. EHRHART

CLEAN STREAMS ! —————

EVERYONE'S WEALTH !

EVERYONE'S CONCERN !

EVERYONE'S BUSINESS !

KEEP PENNSYLVANIA CLEAN



KEEP PENNSYLVANIA GREEN!

COMMONWEALTH OF PENNSYLVANIA

HON. JOHN S. FINE
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PENNSYLVANIA ANGLER

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THE COVER . . . OLD COVERED
BRIDGE, vanishing landmark of a by-
gone era in Pennsylvania history.

—Cover photo by Don Shiner

BACK COVER: INDIAN LADDER FALLS
on Indian Ladder Creek near Dingman's
Ferry, Pike County. This is highest of a
series of 6 beautiful falls on the stream.

—Photo by La Mar Mumbar



George W. Forrest, Editor

1339 East Philadelphia Street, York, Pa.

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HENRY BLATNER PHOTO

*"Its ancient roof resounds the hoof
As water roar beneath it
Through storm and strife it clings to life
And only time can cleave it."*

"The Covered Bridge," Author unknown

The Old Covered Bridge

...vanishing

Pennsylvania landmark

By DON SHINER

(Photos by Author unless otherwise credited)

FISHERMEN are most familiar with the old covered bridges, traveling highways and country roads of rural Pennsylvania, journeying to familiar trout and bass streams. Nestled at the foot of rolling hills and arched gracefully across the streams are those old wooden structures that have been built more than a century ago. A great many have withstood a hundred years of usefulness and remain as symbols of the days when grandfather was a boy. Though these quaint old bridges were erected for grandfather's ox-cart or shay, they still safely accommodate the fisherman and his modern motorcar.

Old country roads were built along the streams which wind around tall mountains and rolling hills. It was here the early settlers of Pennsylvania found traveling at its best. Though it was necessary to cross streams at many points, these early folks forded the water on horseback or with buckboards drawn by teams of oxen or horses. As progress mounted, bridges were erected and the old covered bridge became a popular design. These wooden bridges were meant to last a spell and have; many still in use today. Some 188, by count of the highway department, still remain scattered throughout the rural parts of Pennsylvania.

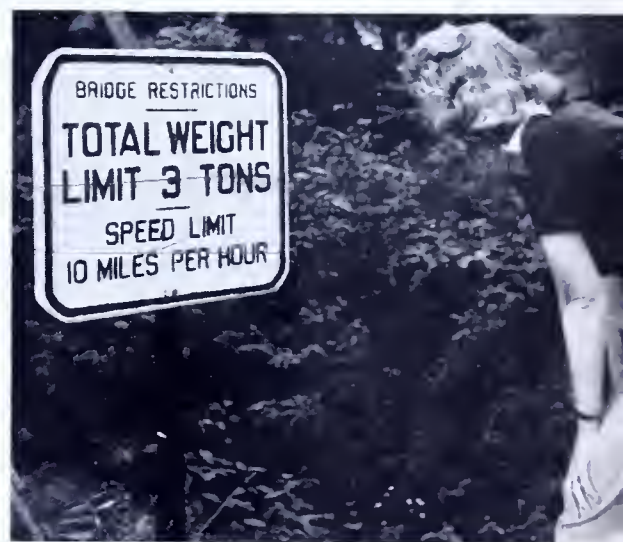
(Continued on page 22, more photos on pages 4 and 5)

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ONE WAY TRAFFIC, the old covered bridge still handles its share of modern traffic but it's a bad place to meet a hay wagon. Many of these old landmarks have now given way to fire, floods and progress, many still remain as only memories of rural Pennsylvania 100 years ago.

THREE TON LIMIT on most of the old spans indicates the 19th century architects, like many today, thought little of the future needs of a growing state. Most bridges are on rural, dirt road routes, seldom cause hardship by weight restrictions.



CLEARANCE on most covered spans is limited to 11 and 12 feet, farmers of the 'eighties loaded their hay accordingly. Built for ox-carts, wagon teams, the farmer's modern tractor equipment safely negotiates from one side of the stream to the other to work his fields.





BADLY IN NEED OF REPAIR, County Commissioners are currently placing the still needed bridges back in operation. This old bridge has been reinforced with concrete pier across Conewago Creek in Adams County.

HENRY BLATNER PHOTOS



WORKMEN of the old school still love to work on the old spans using hand tools, hand fittings much like the 19th century carpenters. Beams and rafters still carry advertisements of East Berlin, Pa. merchants of a century ago. Clothing, shoes, blankets, Indian remedies, pills, linaments, tobacco ads provide interesting reading.



OLD TIME PHOTO of the bridge builders of the early 1800's. Logs hewn by hand, these big fellows swung a lusty axe. When timber was too heavy to handle they were floated down the creek to building site. Farmers got about \$1.00 per log.

PINE TIMBERS used in construction measured as much as 15 to 18 inches square, each cut from a single tree. Floors were supported on bows as shown here. The camber in the flooring measured three to four feet in height at center. Inside, the social life of rural folks of 100 years ago had the old covered bridges rocking and rolling with barn dances and the jig. Weddings, public meetings also were popular.



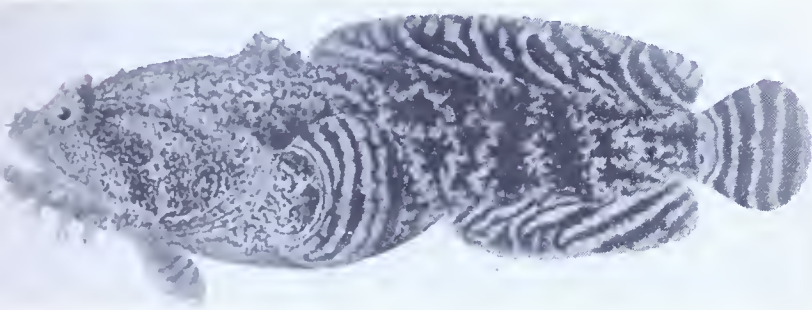
REFUGE still for anglers, old bridge serves as shady relief from sun and storms. Some of these spans could tell wondrous tales of budding romance, a place to just chat about the weather, gossip of the countryside.





BLUEGILL SUNFISH also applies the friction principles of stridulation to give off audible sound.

TOADFISH, common to most bottom fishermen in salt water areas, is most hideous of all noise making fishes.



CROAKER, is champion of all noise-making fishes with the drum a close second.

CATFISH or BULLHEAD has gill covering which supplies stridulation equipment for limited sonic powers.



FISHES . .

(U. S. Fish & Wildlife Photos)

THERE'S a common belief that fishes have no voice mechanism, and consequently are unable to create anything resembling audio vibrations. But this is a mistaken idea, for there are a number of noise-making fishes, and the sounds they produce range from a "bark" to whistles, imitations of jungle tom-toms, mixed voices of barnyard fowls, etc.

Of course fin-equipped residents of the aqua have never gone to the extreme point of releasing a vocal filibuster to convince doubting anglers hailing from the Keystone or any other state. But they do make use of their sonic prowess in a variety of interesting ways—sometimes with mannerisms tailored to suit particular occasions.

Right off the reel I could name for ANGLER readers several dozen fishes that can produce some sort of sound. The sound-producing areas may vary from gill openings to bones supporting the pectoral fins of certain fishes. Some fishes make a bizarre noise by grating together their teeth; others "drum" by rapidly expelling air from the air-bladder, or by the action of high-frequency muscles against the air bladder itself.

Perhaps the champion noisemaker of the fish world is the croaker. The sound he produces is almost like that of a pneumatic drill, given off in drum-roll beats of two or three in succession. During underwater sound investigations conducted by the U. S. Navy, it was learned that the croaker is responsible for most of the volume of noise created beneath oceanic surfaces. So intense was the sound that it could be heard in the air when the fish itself was "drumming" at a measured depth of fifty feet! And L. P. Shultz, in *The Way of Fishes*, relates that he once heard croakers thirty feet down when he was aboard a barge in a South American lake.

Some species in the triggerfish order are able to produce a fairly loud drumming sound by vibrating an area of skin resembling a drum just behind the pectoral fin; other members of the triggerfish family grate together the upper and lower pharyngeal teeth and thus give out with a horrifying "screeching door" noise. The horse mackerel and the sunfish are able to produce sound in the same manner, but at a lower rate of volume. This method of making sound is called *stridulation* (the rubbing or friction of one surface against another.)

at sound off!

By **WILBUR NATHAN SAVAGE**

One of the most effective forms of stridulation is a built-in feature of the Indian catfish. It possesses an elaborate friction system involving the vertebral column and the dorsal fin. The sounds are produced by the scraping of the first interspinous (radial) bone of the dorsal fin between thin ridged plates representing the hinder portion of a bony ridge formed by the fusion of the spines of the fourth and fifth vertebrae. When the fish flexes its body in a certain plane this apparatus is brought into play and harsh, grating noises are produced.

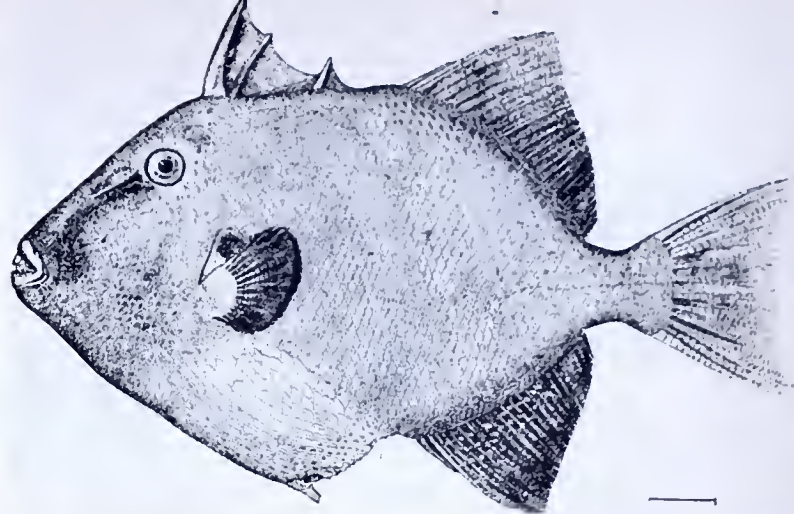
In the gourrnards (sea robins), and in the toadfishes, sound is produced by special muscles lying in the walls of the air-bladder, which, when they contract, throw the walls into rapid vibrations, cause sounds ranging from pig-like grunts to crooning and snoring. By experiment it has been shown that if either the muscle or the nerve supplying the bladder is artificially stimulated, a perfectly normal sound is produced, even when the bladder has been removed from the fish and placed on the operating table. No sound is given off if the bladder is punctured, but the introduction of a rubber balloon inside the bladder leads to a sound when the muscle is stimulated by electricity.

Besides the Indian catfish, already mentioned, a number of other "cats" are able to sound off in no uncertain tones. In most of these barbed warriors the noise is produced through the agency of extremely active muscles associated with the air-bladder, and the apparatus proper resembles an elastic spring mechanism. The "springs" are specially modified portions of the fourth vertebrae, and their expanded ends are attached to the front part of the air-bladder. Two strong muscles run from the "springs" to the skull, and when these are called into action the walls of the bladder vibrate rapidly (at the rate of about 24 contractions per second), and a growling or humming noise is produced. In most cases the air-bladder is divided into sections with open-top partitions, each chamber containing gases which help to amplify the intensity of vibrating movements—the range of which represents wide tonal diversity in individual types.

The elastic spring device in the electric catfish causes a hissing sound, and a South American catfish is said to

(Turn to page 23)

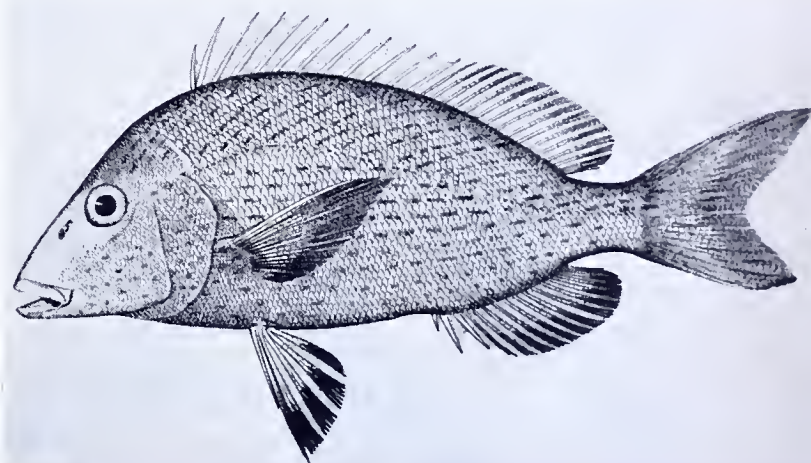
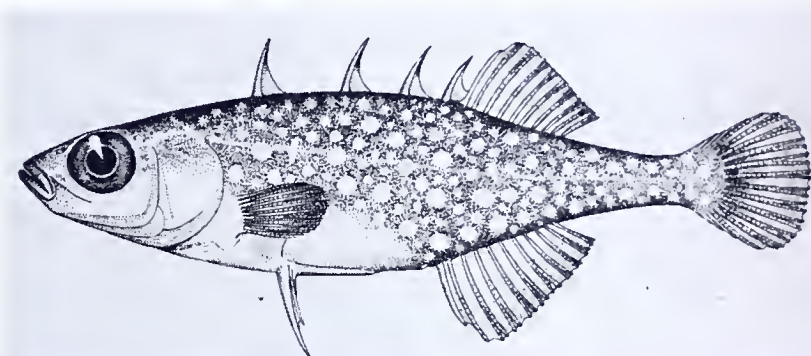
SEPTEMBER—1953



THE TRIGGER-FISH

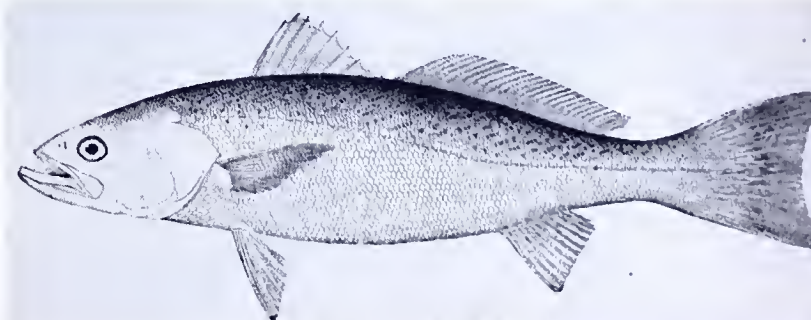
Almost all the TRIGGERFISH clan are able to produce sound.

The STICKLEBACK is very low noise maker, uses its fins to make underwater small-talk.



HOGFISH, can grunt like a pig with startling perfection.

WEAKFISH or squeteague made noises which the ancient Greeks put into fable many centuries ago.



THE COMMON SQUETEAGUE.

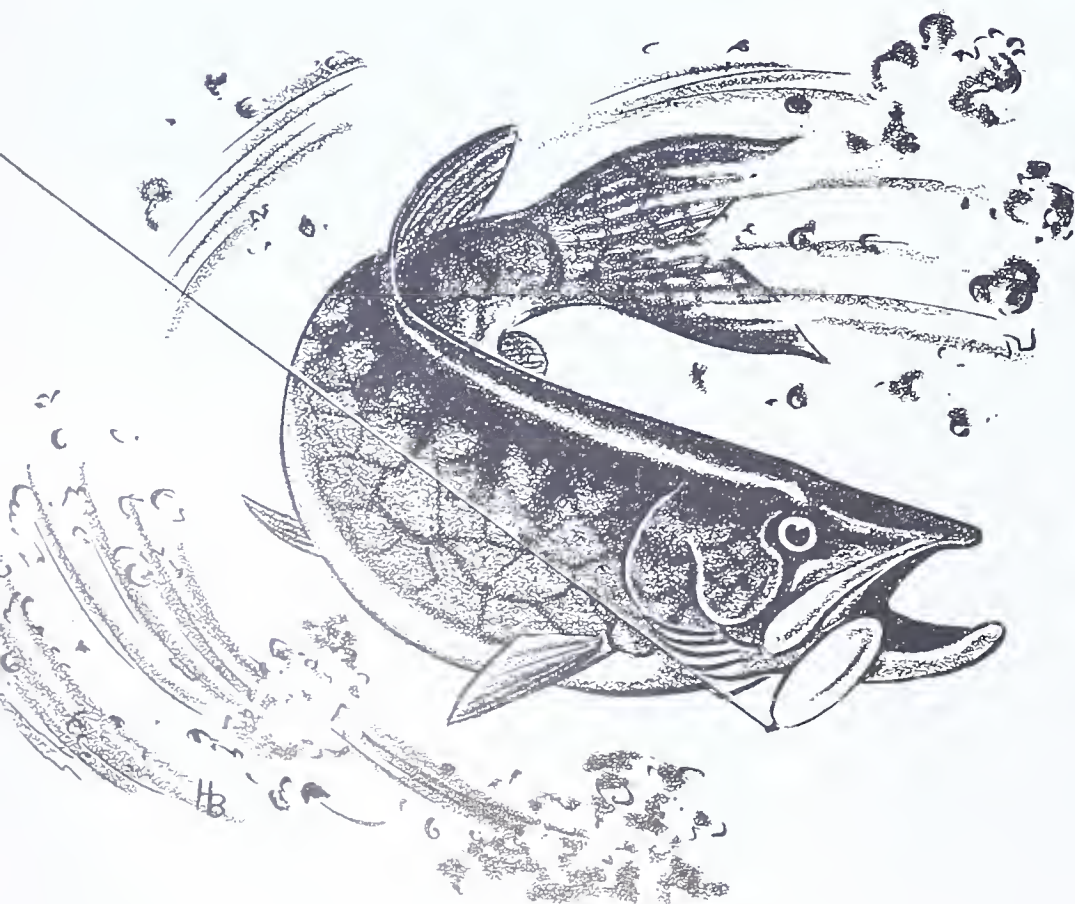
Bait

Versus

Artificials

By JOE PANCOAST

(Outdoor Editor—Philadelphia Bulletin)



MUCH has been said and written to the effect "there is more to fishing than merely catching fish."

Word merchants have put together glowing accounts of the sunlight dancing on rippling waters, songs of birds, glimpses of wilderness creatures and other facets of days spent on lake or stream.

That these add to angling cannot be disputed but they don't black out one basic fact—fishermen, as a whole, want fish and not fancies. The facts prove it.

A survey, conducted by Pennsylvania State Fish Wardens in 1947, showed that 61 per cent of 33,035 trout fishermen interviewed were using worms for bait. Artificials were on the terminal tackle of only 24 per cent of the casters, while 13 per cent leaned on live or baitfish and 2 per cent depended on fish-bait. Thus, 76 out of a 100 anglers used some form of natural food.

In 1949 the figures hadn't changed much. Wardens found 59 per cent tossing worms around, 5 per cent had fish-bait on their hooks and 10 per cent had faith in bait-fish. The balance of 26 per cent used artificials.

Creel census work is still underway in Pennsylvania but during the last two years has taken the form of intensive work on fewer water areas rather than a general census. Within a few years the Fish Commission hopes to have a definite pattern covering all phases of fishing.

If the amount of artificials found in tackle stores were used as a basis for determining the number of anglers

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using lures instead of bait, it would appear that only a few dunked into nature's larder or fish tid-bits.

Tackle salesmen believe that newcomers to the ranks of artificial users are few and that most merchandise is dispensed to those already bitten by fly, spinning or plug casting bugs. A peek at the array of lures toted by a dyed-in-the-wool artificial disciple bears out the point.

Perhaps I am lost in the woods but, to me, these figures have but one meaning—anglers want fish. If that were not true, then why the great number using natural baits? There are some who may claim that using bait is easier than fussing around with temperamental fish foolers created by man. Grant, then, some anglers want to take it nice and easy and relax in nature's lap; that still leaves a host of rod and reelers dunking edible morsels in front of fishes' snouts.

Along about now this autopsy will begin to find little favor with bait fishermen. It shouldn't. There is nothing wrong about wanting to catch fish. Those, who use only artificials and would as soon be caught robbing the church poor box as found possessing live bait, have the same hankering only more of it.

Ever watch one of them in action? They change lures and cast until arms are numb. They want fish.

Willingness to recognize that the bulk of all anglers possess an intense desire to hook a finny opponent, changes the outlook on bait versus lures. The situation becomes a Hatfield-McCoy prototype with both sides feuding over nothing.

Basically, there is nothing wrong with bait fishing, especially if the enticers are worms, crickets, grasshoppers, mice or other land products. Ecologically, there can be harm in removal of natural stream life for use as bait. It can hurt fishing by reducing natural food to the point where hunger overweighs caution, making fish easier prey. Too, the fish that can be supported by any body of water depends upon the amount of food present.

But the bait-user isn't alone in his destruction of fish food. The purist fly fisherman *wading* his favorite stream breaks the natural food chain just as effectively as those foraging for fishbait or bait-fish. Research has proven this to be true and some clubs, owning private waters, have already banned wading in an effort to improve the natural food supply.

Such a move can be classed as "conservation." The same tag doesn't apply to the rule on many private waters and some state owned stretches, limiting all anglers to artificials. That is not "conservation." It is a matter of "distribution." Prohibiting all but artificials enables more anglers to get a few of the fish present. It takes a mighty skillful rod wielder to clean out a pool through the exclusive use of counterfeits. The worm or minnow fishermen can turn the trick easier.

The additional handicaps the artificial user takes on has led some of the feather and tinsel clan to believe they breathe rarer air. Whoever started this nose-in-the-cloud attitude didn't help angling a bit. If those who stick to artificials would only recognize the urge to catch fish motivated most of their tactics, the breach between bait and artificial slingers would not be so great.

Bringing the two closer together would help angling by increasing the number of those using lures. A lot of bait fishermen would make the switch to imitations tomorrow if given a helping hand. I base that on personal experience.

For 20 years not a piece of live bait has graced my line. Not because of any false sense of "sportsmanship." A trout or bass on the dinner table is just as dead whether taken on a worm or a No. 20 dryfly with barbless hook. The latter is more difficult and, when accomplished, makes me feel better. Further, I dislike fooling around with live bait. Artificials are easier to carry and cleaner.

Others have found it so too after a peek behind the iron curtain that blocks those interested in fooling fish.

Without exception these fellows wanted to know more about fly, plug casting or spinning without being preached to or made self-conscious of their desire for "know-how"

Just where can a bait fisherman turn readily for information on the use of artificials? Opportunities are meager and those available are eagerly taken up. For example, George W. Harvey of Pennsylvania State College has conducted extension course classes once a week for six sessions at Swarthmore, near Philadelphia. His subject was "Fly Tying and Angling Techniques."

Each time the course was over subscribed. The majority of those attending were strangers to the realm of artificials—but they wanted to learn and eagerly accepted the challenge.

In my mind, more would do the same if the opportunity were at hand and we, who use artificials, stopped trying to dress up our favorite form of angling to represent something only for the few.

After all, the use of artificials is only a method of taking fish. Forgotten is the fact that trout flies only came into being because the originals were too delicate for the hook.

The man-made concoctions conceived since are certainly not as effective as the natural product. But they are more fun, which lessens somewhat the desire to—just catch fish.

Why not more of this combination. It appears to be good medicine, for in recent years, the Rx has helped an ailing fishing condition.

Miles of privately owned waters, formerly closed to the public, have been opened under special regulations that hinged largely on the exclusive use of artificials, plus rules to protect land owners.

Two prime examples are in the Poconos. Three and one-half miles of the famous Brodheads Creek, once barred to the public, are now open through the cooperation of the Pocono Mountain Sportsmen's Association and riparian owners. Only artificials are permitted; the daily creel is six, minimum size eight inches, and fishing permitted only between 5:00 a. m. and 10:00 p. m. Pocono sportsmen also arranged the same set-up on four miles of the Big Bushkill.

Thirty miles further north the Hawley-Wallenpaupack Sportsmen's Association succeeded in getting five and one-half miles of the lower Shohola Creek open to public fishing.

There are other instances throughout the State. Emphasis is always on the use of artificials. Why? Because a limited supply of fish can be made to stretch further under such a set-up.

It would seem anglers would go for this like kids for candy, but the figures say otherwise.

Only fishermen can engineer a shift to more artificials and less bait, especially the aquatic varieties. Unfortunately, the task rests with a few—those possessing the know-how of making something inanimate appear like a filet mignon to a fish.

These fellows hold the key and, unless they share it, the angling door on artificials will always remain closed for a large percentage of fishermen and *that's not good!*



20-INCH HELLBENDER just pulled from water by Paul Swanson. This huge salamander is 2½ inches short of the Swanson's record and 7 inches short of the record for the country.

UNDERWATER SHOT of this ugly gent doesn't help his appearance a bit. It takes an iron grip to hold these slimy creatures as they struggle to free themselves. Contrary to popular opinion they're harmless.



water dog hunt

By Hal H. Harrison

(PHOTOS BY THE AUTHOR)

“WHAT good are these blankety-blank waterdogs?”

That's a question scores of fishermen ask themselves every year when their baited hooks are swallowed by waterdogs, more correctly known as hellbenders (*Cryptobranchus alleganiensis*), the largest local members of the salamander family.

And well may they wonder as they struggle to loosen their lines from these huge, slimy, wiggling creatures. The tussle usually ends with the angler cutting his line, muttering a curse on all waterdogs in general, and bashing in the head of that individual in particular.

Fishermen generally hate these hideous, pre-historic-looking aquatic monsters . . . excepting Paul and Dave Swanson, two Venango County, Pennsylvania anglers who have found in waterdogs a rare and exciting sport, and a fair profit too.

Since 1932, these two men, who conduct Swanson Brothers Nursery on Route 8, midway between Butler and Franklin, have engaged in the sport of catching waterdogs with their bare hands. During that time, they have captured alive, over 1,000 of these slippery critters, some measuring over 20 inches in length.

While fun and adventure has been

the motivating factor behind this unusual pastime, the fact that the brothers have been able to sell specimens alive to various biological supply houses at a price ranging from 25c to \$1 each, has added zest to the venture.

Hellbenders are caught during the day by wading in creeks, lifting rocks and grabbing the thing in their hiding places or feeding on crayfish. These methods of hunting them are based on the knowledge that hellbenders are nocturnal in their habits.

In the beginning, the Swansons caught hellbenders with a long-handled net. They discontinued this in favor of their bare hands because they missed too many. In addition, grabbing them offered more sport, for invariably a terrific struggle followed the capture.

Despite their vicious, hideous look, waterdogs are absolutely harmless. Not many people will venture to touch

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ANGLERS CONFUSE the mudpuppy, top, with hellbender, bottom. The mudpuppy has bright red external gills while the hellbender does not but is a large flat, flabby creature varying in color from yellowish brown to brick red yet most are dull brown.



HELLBENDERS, like other salamanders, lay eggs. Here are two found under a rock in bed of stream, have become detached from the rosary-like string in which they are laid.



them, but their fears are entirely unfounded. Like so many other things in nature (huge caterpillars, for example) their vicious-appearance is their best protection.

It is dollars to doughnuts the tyro would be unable to hang onto the first waterdogs he grabs. The creatures' bodies are coated with a heavy slime which makes them as slippery as anything could possibly be. The Swansons have perfected an iron grip, plus a method of holding the hellbender's front legs between their fingers, which has proved successful in getting the things from the water and into a burlap bag hanging from their sides. Even so, they miss quite a few.

Record catch for the Swansons was 51 waterdogs in three hours. Paul, hunting alone, caught 36 in two hours and a half on one occasion. The largest specimen the men ever took measured 22½ inches. The record for the United States is 27 inches.

In recent years, the Swansons have

(Turn to page 28)

COOPERATION NEEDED to snag 'em. Dave Swanson hefts big rock in a Venango County creek while brother Paul grabs a hellbender hiding underneath. Once inside burlap sack, salamander is considered safely, "in the bag!"





KEITH SCHUYLER PHOTO

some women anglers I have met

By BILL WOLF

BACK in the days when Pennsylvania's trout season opened at midnight I was one of many casting into the inky blackness of the Wissahickon when I heard a ladylike "Damn!" beside me and thought I recognized the voice. Next time I had occasion to use my flashlight, I turned it upon the person whose expletive had attracted my attention, and it was someone I knew. "Hi, Mary," I said casually, just as though it were absolutely normal to meet an attractive woman acquaintance along a stream in the black hours before dawn. "Where's Bud?"

"Downstream there somewhere," she waved vaguely, and waded out of the shallows to have a cigarette with me. "Guess you heard me swearing? I've been hanging up on something I can't see out there in the water." Later, in the daylight, I came across her and her husband still fishing. Next spring I was on the Octoraro opening morning—also at midnight—and Bud and Mary were there, too.

Sometimes I would see her at club field days, competing in the plug and fly rod casting events, or at other similar contests. Then, one spring, I was sucker fishing when Bud came along without his wife. "Oh, Mary had a baby and may not even get out for trout opening," he answered my question. But she did make it, I learned later, and, although I have lost track of them, I have no doubt that Mary still goes fishing with her husband whenever she can, despite the fact that she now has a couple of children.

She never did anything spectacular, never caught any record fish; but somehow she represents all women anglers to me. She fishes like a man, asking no favors because of her sex. I never heard her complain, and never heard her husband complain about her. He accepts her as a fishing companion as readily as he would any man.

She is no exception, but the general rule among women who fish. And I would like to go on record now as believing that any woman who really likes to fish is a better man than most men are at angling. This conclusion is based on knowing many women anglers, and having observed many others that I did not know personally. It has nothing to do with the number of fish caught by either sex, with skill in casting or boat-handling ability. I simply mean that such women are better sports than men.

They have to be better sports or they wouldn't be invited along a

second time after one bad exhibition of poor sportsmanship. They start with two strikes against them when they fish with men because there is an absurd prejudice against women who mingle in "masculine sports." This prejudice extends from the individual male clear up to the national outdoor magazines which hesitate to use feminine angles on angling for fear of offending men readers. It even extends to clothing and equipment manufacturers, who make practically no attempt to outfit women anglers sensibly, comfortably and attractively. It shows in innumerable cartoons which make the woman angler the butt of the joke, and in a general condescending, patronizing attitude toward them.

The prejudice springs from an assumption of male superiority, and long custom. In the past, men hunted and fished, women stayed at home, whether that home were a cave, frontier cabin or house, and tended the fire, did the cooking, minded the children. This condition existed until quite recently, except among wealthier persons where women were relieved of the fire-food-children problem and could accompany their men afield. Generally, though, custom dictated that women stayed at home—and custom bred the masculine assumption of male superiority in the field. The assumption is ill-founded because women are the equal of men in most sports where greater size or greater strength does not count—which certainly includes angling.

Remembering some women anglers I have known, one thing impresses me most about them. That is their dogged perseverance. When the going is rough, and the fishing is bad, the women stick to it long after most men would be ready to quit. Not to bring in family, but my wife usually is the first on a trout stream in the morning, we see little of her thereafter, and have to hunt her at quitting time in the evening because she fishes right up to the last minute. Likewise, on a partyboat sailing out of Wildwood, N. J., one of the woman anglers aboard was first to drop her line, fished throughout the day, quit at the last possible minute, and cleaned her fish on the way back to port. "She's a regular all summer," Captain Bob Pierpoint told me, "and she's no spring chicken, either—must be nearing seventy."

There is something about fishing that arouses primitive instincts in a women that more than equal those found in men. I've seen it happen

many times. A woman who never caught a fish before starts angling, and misses the first one. Or perhaps she catches her first fish. It doesn't matter. What matters is that something wild has challenged her, something that she has caught—if only momentarily has struggled at the other end of the line to get off, to go free. If she lands the battling fish, she is sold forever on fishing. If she doesn't land that first one, she is still sold because she is resolved to net the next one.

After that original thrill, the excitement persists, furthered by a determination (which they probably wouldn't admit) to beat the men at their own game. This does not necessarily mean that they want to catch more or larger fish—although that is part of it—but they do want to catch as many, to be accepted without allowances for sex, and to show that they can take it.

One woman that I know became interested in fishing because she tried at first to be a good wife only. Her husband liked fishing, so she agreed to fishing vacations and would follow her husband along the stream, sometimes disentangling his line and lure when he hung up on bush on the bank, sometimes just watching him. From there she progressed to using his outfit to make occasional casts—then she caught a fish. Next she had her own outfit, and now she fishes regularly beside her husband. However, she seldom catches more fish than he does, and this, I believe, is design on her part. A sort of courtesy toward her husband.

Women have a certain cold-blooded approach to fishing that is interesting, and which convinces me that the female of the species is deadlier than the male. With few exceptions, they don't give a damn about theory and technique. They will not sit down and read what others suggest, they will not study their art, won't get involved in arguments about how to catch fish. They learn a few knots, enough to enable them to tie a leader to a line, a fly to a leader. They learn to cast sufficiently well to get out enough line—but they take no particular pride in their casting. They are more careless than men with their tackle.

These, mind you, are generalities. There are exceptions to everything said above, of course; but, generally, women are interested in one thing only after they start fishing—and that is, catching fish. Certainly, men are in-

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Harvest Bass

By RAY OVINGTON



MOST anyone can take bass when the season first opens. Harvest bass are temperamental!

There are several reasons why I like fishing for bass in the late fall. There are few if any bothersome flies and insects, the morning and evenings are cool and the lakes are all but deserted except during the mid-day. The fish are pestered less and have grown a bit since the opening of the season, though fishing for them isn't as easy as the conditions might reflect. I like a little more contest for the prize.

In most cases, the harvest time bass are beginning to move out of the deep water early in the evening while on their feeding spree and are prone to stay inshore later in the morning. They now require a change of lure more often, a careful approach, better handling of tackle and longer rests between casts. This is when they will utterly ignore a lure after they have seen it a couple of times, for it loses its appeal rapidly.

I have learned all this the hard way. I've made it a habit to question bass anglers as often as possible in the search for any answers or conclusions that could be made and most seem to concede that the smaller lure sizes are more effective this late in the season. Where a big double jointed plug or the large surface plug was a killer in July, miniatures are now in order. The smaller lure drops to the water with less splash. The lure, if a floater, should remain still for at least a minute before the retrieve is started and then, it is not just pulled home . . . stop it often, pop it a bit, retrieve smoothly for a stretch, let it lie still and repeat the process. It will often be found the bass will follow along and take the plug as it approaches the boat . . . a pickerel and pike trick. If you see the bass following and at the last minute "chickening" on the hit . . . immediately change the lure . . . rest the area while the bass returns to the shore, then try again. I've frequently seen this process pay off.

When it comes to these smaller lures and the more delicate technique, I find spinning tackle answers the need. The casting distance can be lengthened considerably over that commonly used in bait casting, thus lessening the chance of disturbing the bass that are along the shoreline. For underwater lures, I've found that a bucktail weighted with a couple of split shot, or one with weight under the dressings will cast accurately and far enough. Use a slow retrieve, paused with

jitter action. In order to effectively fish such a light lure, light line is a necessity because brother, when a four or five pound bass hits a streamer amid overgrown weeds, or near snags, it takes a bit of handling to land him. Don't tell anyone, but one way to make that bucktail or streamer lure twice as effective is to rub fish slime into it . . . it really works! I tie my bass fishing bucktails with generous fur bodies that will soak up that fishy odor and hold it for quite a number of casts.

If you are a live bait man, follow this general casting technique and you'll also find, with light spinning gear, that you can throw the minnow great distances accurately, with little or no weight needed to get it out. There are times when the real thing, fished properly is absolutely deadly on these harvesters. Still fishing of course takes its toll, but this is for the day-time hours. Casting can begin when the sun is low.

Bass bugs too are the medicine under many conditions and can also be handled very well with the spinning rod. True, it is hard to cast a light bug great distances, but you'll find with spinning gear, it is much easier to work them and you will have less line splash on the water. When more distance is required or while fighting a breeze, add a small split shot or two ahead of the bug and use spinning line that is just a bit heavier. For usual "fishing" with the bug, if the rod is limber, three pound test monofilament is right . . . use four or five if you are working against a wind or when greater distance is required. When you make the cast, wave the rod rather than flip it. Also, let the lure hang down from the tip for about two and a half feet, giving that little extra swing to help pull off the line from the reel. If the rod you are using is fairly stiff and fast in the tip, wrap a piece or two of wrap-around lead between the tip top and the first guide. Wrap it flat so that it will not catch in the line. You will find that this will slow down the action just enough to be accurate. You'll out-fish and outcast the fly rod man . . . with much less effort.

When it comes to night fishing, the techniques, so killing during the early and mid-season, must be refined a bit. The fish come into the shore or up to the surface in search of minnows, so night fishing now is not concentrated merely along the shore line where it was necessary to place the lure



within inches of the brush and snags. I have often cast out into the lake, while giving the shore a rest, to have a bass come from the depths and grab the surface plug. Another trick is to troll a surface wobbler well behind the boat. Cast your other rig to the shore and ahead of the boat occasionally, then row forward a bit to a fresh area, keeping a close watch on that plug you are "trolling." If you are equipped with spinning tackle, lay the rod down in the boat with the drag set fairly loose and with the anti-reverse "on." When the fish hits, the reel handle won't spin as it does with conventional bait casting outfits, nor will there be danger of losing the rig overboard. After the strike, with the rod in your hand, it is a simple matter to tighten the drag and play the fish.

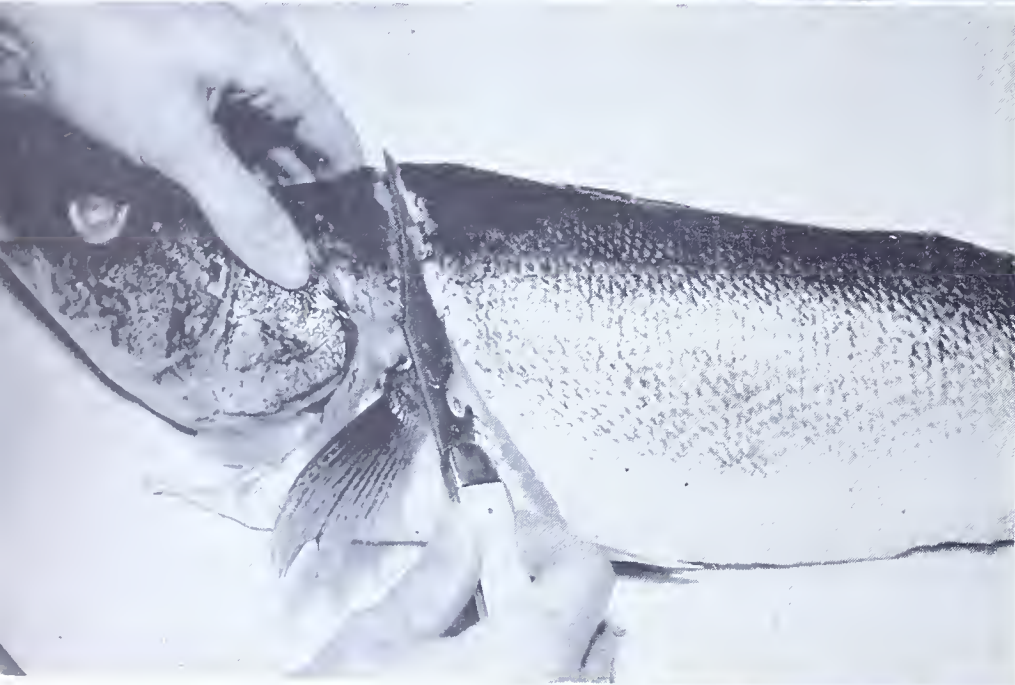
In general, if you use spinning tackle, you'll enjoy the play of the fish due to the softer action of the rod as compared with the bait casting stick. There is a hazard though . . . you'll have to strike a bit harder to sink the hooks. Remember that spinning line stretches more and the soft action rod means more setting action to secure the barbs. Fight the fish with the rod at right angles to the line direction and the biggest bass in the lake will never break even the thinnest practical spinning line.

Don't be "chicken" and hang up that rod and line with the first frost. Harvest time is the time to harvest that big fat lunker for the pot!

how to FILLET YOUR FISH

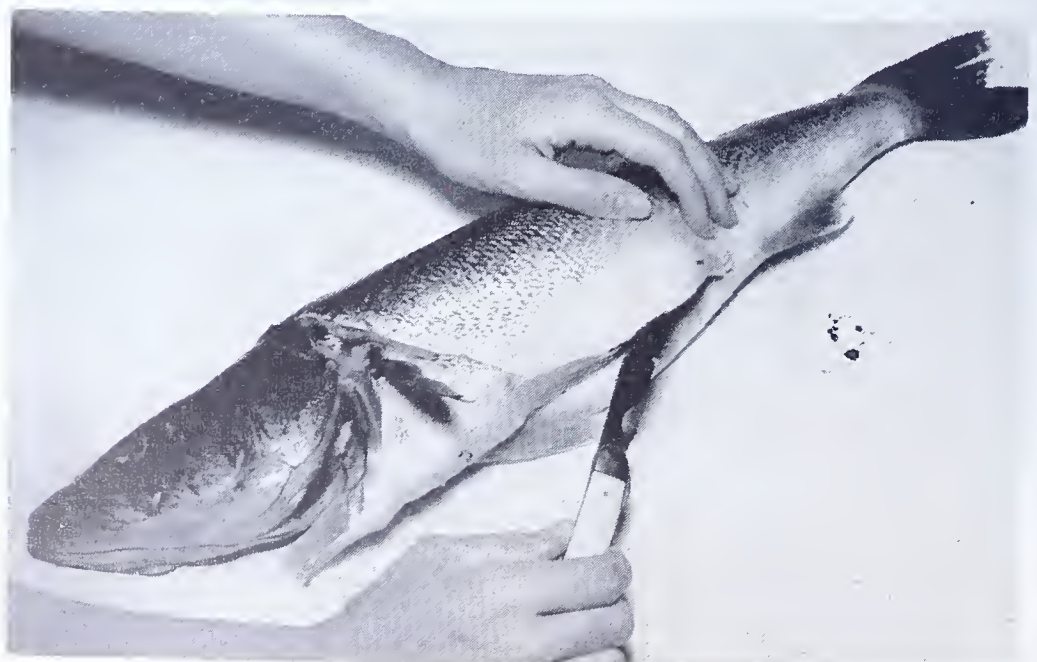


A walleye or pike-perch was selected to show how to fillet your fish, but trout, bass, pickerel, yellow perch and others can be cleaned and dressed in this same manner. Using a sharp knife, begin by cutting through the skin from head to tail along the dorsal fin.



Next cut a diagonal line from head to pectoral fins on belly. The skin is tough so use a sharp knife. Do not bother to scale fish.

Continue to cut through the skin along the belly from the pectoral fins to tail. Skin can now be peeled from fish.





Use the knife to lift the edge of the skin, then peel it back toward the tail. Skin will peel easily from freshly killed fish. If part of flesh clings to skin, use the knife to cut or push it from skin while it is being torn from body.



With the skin laid over the tail, run the knife along the backbone from tail to head or in reverse order, cutting fillet from body. Sever fillet close to head.



Here is the fillet cut from one side of the walleye. Very little of the edible part remains on the fish. Use this same procedure to fillet other side of fish. Remove the fillets and discard the remainder of walleye. After a little practice filleting becomes easy and you will make nice cuts and have little waste.

The two fillets from the walleye are practically bonefree and prepared without skin, it's mighty delicious! There's no work to clean a fish by this method, in fact it's fun.

Wrap the fillets in wax paper and freeze. Cook according to your favorite recipe. Salt the fillets lightly, roll in flour or meal, then fry in deep fat or bake to a mouth-watering appearance.



BIG ONES

Feed

by

Night

By KEITH C. SCHUYLER



POPPING AT NIGHT brings on plenty of action. Small popping bugs in red and white, sometimes black is good, and brought through the water with a commotion wakes up any smallmouth bass. Hitting on the surface, you've got to set by sound and timing.

STRANGE sounds, solitude, an almost frightening black void plus a blanket of peace pregnant with unexpected thrills . . . That's night fishing.

Of all the angling methods known to man, there is none in my book more fascinating and productive of big fish than the dark hours on a good bass lake or trout stream. And, since night fishing is best during the hot months, the stars often bring with them a cool balm pleasant and soothing after a noisy, hot and arduous day.

The rasping moan of the bull frog, the isolated splash of a feeding fish, a distant train whistle, uncoded messages in firefly Morse, a watchdog at work, the short-lived dawn of an auto cresting a hill, cool water, comfortable air . . . these are the treasures of the night which enrich our senses in a manner found by no other means.

True, our visual sense is treated only to modifications of black and white, but touch, smell and hearing develop a new acuteness. Imagination makes up for the hidden realities as night takes over from day.

And, while the world rests, it is then big fish move from under the bank, sheltering boulders, protection of submerged logs and twining roots, from out of the depths that are even dark by day. Like cautious submarines they cruise the shore line, venture into the shallows and scan the quiet surface of the water. Now and again they turn into a twisting, dashing mass of determined muscle as the quiet is momentarily shattered and a luckless creature is carried below.

All fish must feed. And if you know a spot where there are big fish, but big fish rarely caught, there can be but one answer. They feed by night.

Ask the old timers who one time counted it sport to gig for fish at night with the pronged spears that have long since been outlawed. They will tell you of the monsters they have seen by the glare of their gasoline lights. You would be amazed at the size of the fish which inhabit the pool where you consider a twelve-incher a good one.

Early morning and late evening have

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BASS AND TROUT both reward night anglers who know their streams. Otherwise, it's dangerous business stumbling or bumping around in the dark.



long been considered favorite times to fish by the general angling public. It is then the best catches are usually made. What the conventional angler fails to realize is that he is finding good fishing at the *end* and the *beginning* of the feeding periods. If he would get up a bit earlier in the morning or stay a bit later in the evening, he might be amazed at the results.

If you look back over your experiences astream, you will likely remember the biggest fish you ever caught was taken close to, or during, the hours of darkness, or perhaps that big thrill came on a dark, cloudy day.

Night fishing is rough fishing at best. We want to be explicit from the beginning on that point. And, the reason more fish are not caught by those who seek their big ones during the hours of darkness is because it is difficult to present your lure in the right manner, in the right place.

You must be prepared for plenty of trouble. Although the human eye accommodates itself amazingly well when the sun is gone, depth perception goes almost completely haywire. You will cast too long or too short many more times than you will hit the mark. Prepare to make repeated trips to shore, if fishing from a boat, to re-

trieve your plug or fly from bushes and trees. Along the stream you will find branches, brush and weeds considerably more numerous than in the daylight.

But, it's all part of the game.

Although there are disadvantages, there are compensations in addition to those already mentioned. For one thing, at a spot where it is sometimes difficult to find elbow room to fish during the day, you will usually find that you have things completely to yourself at night. This is well. For even at night the big ones are extremely wary and will head for home at the slightest disturbance. That is how they become big fish . . . by playing it safe.

Another advantage is in the fact you can permit yourself more leeway in the selection of tackle. Where the water is low and clear and the fish are extremely leader shy in the daytime, you can use tippets of strength more likely to hold the big ones at night. Too, although the big fellows do sometimes strike when you can see what is happening, they are almost invariably feeding close to roots or brush where they can wreck light tackle before you have a chance to turn them. At night, you may tangle with a lunker in water that barely covers him, and you have a chance to give him a good argument before he wraps you around his favorite rock or root.

Anglers who have jobs preventing them from fishing often during the day can make up for this inconvenience by nocturnal sojourns.

Patience is paramount.

There are many things to distract a person's attention during the day, but time drags slowly when all is dark. It is often a real test of a man's religion when he finds a limb or a stump rather than a fish on the other end of his line. It takes a real died-in-the-wool angler to sincerely declare he actually *likes* night fishing.

One of the quickest catches of big bass I've ever made came on a night that even I would have marked down as fit for sleeping. The wind was blowing a mild gale from the north and storms were threatening. Nevertheless, since it was the last night we had to fish on that particular trip, three of us decided to go out anyway.

The spot we had chosen was a sheltered narrows where the river fed into a big bay. Two of the boys decided to go directly there with the

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WALTER M. LAUFFER PHOTO

ON ANGLER'S FAVORITE LIST of baits, the Crayfish is also much sought for a delicious dish, Crayfish a La Creole.

The Lobster's Little Cousin

By ERWIN A. BAUER

I'LL always remember a misty dawn several years ago. Charlie waded out into a riffle that broke sharply around a bend in the creek and into a deep pool. He was armed with a fly-rod and a half dozen soft-shelled crayfish. Nothing more.

Of the two of us, Charlie was by far the most ambitious. While it was still black as pitch, he had taken a flashlight and collected the crayfish. And he was drifting them through the riffle when I awakened at first light. The coffee I was brewing had just begun to boil when I heard him give his rebel yell. He had hooked a two pound smallmouth.

Before I could set up my tackle and join him, there were three more rebel yells. The second announced a ten inch rock bass. The third was caused by a two pound channel cat. But the truth was in doubt for more than a half hour; I finally put the net under an eight pound carp. It had taken the last of Charlie's soft-shells.

It's hard to say what would have happened if we'd had more crayfish that morning. We tried various streamers, spinners, and spoons for more than an hour afterwards, but only a pair of obliging rock bass were added to the stringer. We can only speculate.

Crayfish have always been favorites of fishermen. They've also caused considerable disagreement, too, between the soft and hard shelled schools of thought. There's many a veteran angler who will look you in the eye and say, "Craws is craws. Fish can't tell whether they're hard or soft."

Here's what causes the whole discussion. Crayfish—there are several dozen species of them that inhabit all kinds of places—shed their shells as they grow larger. They are most active at night, scavenging on anything edible they can find. When they get too big for their britches, they move into shallow water to molt. That's a very ticklish period in its life.

Just before the shell is discarded, the creature is known as a "peeler." After that it's a soft-shell. For two or three days when the new shell begins to harden, it's a paper-shell. Then back to the hard-shell stage and a normal life eating everything it can find in deeper water. You take your choice when it's best for bait.

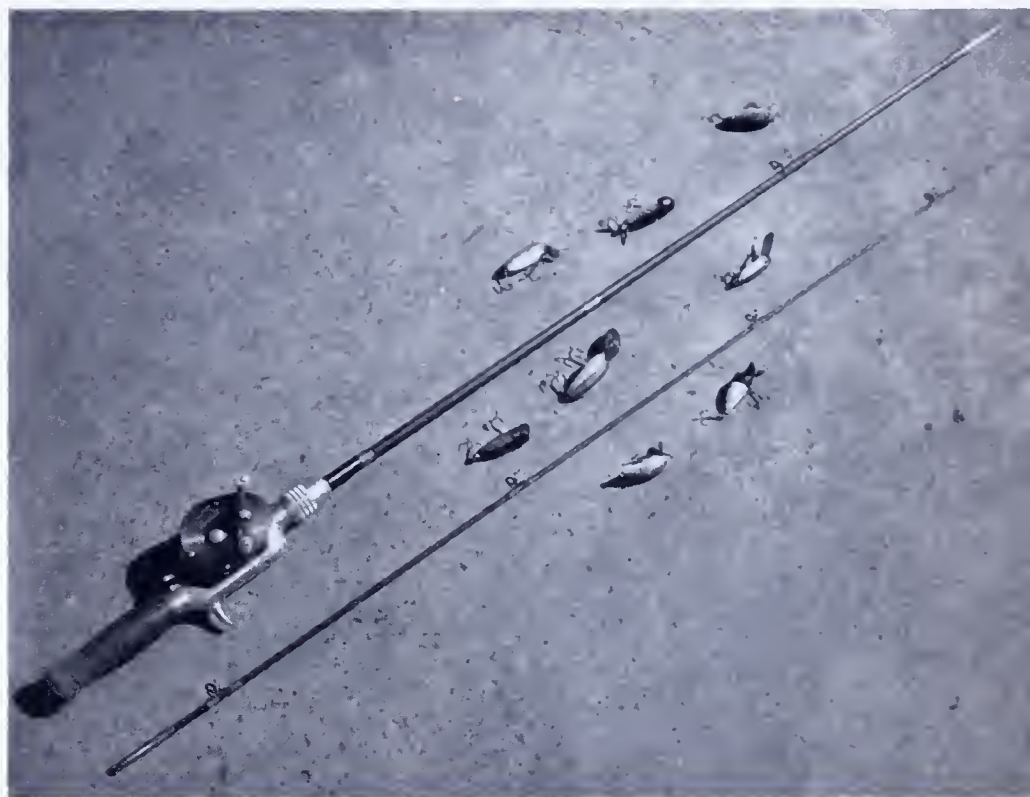
Crayfish have no particular favorites, unfortunately for them. All kinds of fish relish them—at least fishermen find that using craws for bait is often

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NEVER before in the history of angling have fishermen had such a wide opportunity to select the perfect casting outfit. Today's amazing variety of rods, reels, lines, and lures is a veritable bonanza for the old and new plug fisherman alike. To the old-timer this mass of tackle presents just another opportunity to increase the effectiveness of his fishing. Any new purchases he may make will be dictated by the fine hand of experience. To the beginner at plug casting such profusion is likely to result only in profound and discouraging confusion. Unless he seeks the advice of someone experienced at the game he is likely to spend his dollars well but not wisely. It is with the idea that one person's experience may help the beginner, and perhaps the oldtimers too, that this article is attempted.

Lest I be accused of being an unrealistic idealist let me state at the



Plug Casters Bonanza

By LEE DIEHL

outset that I am aware that the perfect casting outfit does not exist. It may exist for one purpose or for one person, but certainly not for all purposes and all persons alike. What would perfectly suit one person might or might not suit another. Nevertheless, it is fun to seek such an outfit, and not unprofitable in experience nor unrewarding in numbers of fish caught.

Let us try to set up the perfect casting outfit for the Pennsylvania light lure angler. My ideas are not those of an expert, but just those of one who has been through the mill right from the beginning of light lure fishing as it had its genesis in southcentral Pennsylvania. If you agree with my ideas, fine; if not, so much the better since progress is achieved only through the exchange of ideas.

Fundamentally, then, our outfit must, first of all, be adequate strong for the fish sought. Secondly, it must be properly balanced throughout; correctly combining weight, length, action, and power. Certainly, too, it must

be durable, lasting if possible, a full lifetime. And, lastly, it should, unless you have more excess cash than I, be relatively easy on the pocketbook.

The accompanying illustration pictures what I consider, for the moment at least, the perfect light lure bass outfit. It will easily and properly handle any lures weighing from one-fifth of an ounce up to one-half an ounce. It is sufficiently strong for use on any fresh water fish except muskies and large pike. Almost no effort is required to make a cast of more than adequate length, and it is light enough to use all day long without becoming tired. Its length and flexibility make it easy to lightly play a fish for maximum pleasure and safety. I don't say that it is the ultimate in casting outfits, only that it is nearly perfect for me.

In choosing this outfit I have discarded the idea that length of rod and height of user have any bearing on each other. The idea just doesn't make sense any way you look at it. Nor do I

believe that it is wise for the beginner to start with a little heavier outfit and progressively work toward finer tackle. Would you suggest that a tennis player start with an unsuitable racquet or that a beginning golfer play his first round with ill-matched clubs? Too many potential plug fishermen have been discouraged by starting with the wrong tools. True, when starting with an ultra light outfit you may lose some minor pieces of tackle such as plugs but, in the end, you will have by not having to buy several successively lighter, more suitable outfits. To me it makes more sense to start with the very best tackle available and the very lightest which your personal needs will justify. I have seen more good sportsmen and conservationists quite literally created through the use of fine, sporting tackle than are persuaded by all the literature published on the subject.

Let us take the illustrated outfit apart piece by piece. The rod is tubular glass. Specifically it is a Sila Flex

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Pennsylvania Fish Commission Meets, Reviews Land Acquisition Program, Sets Aside Nursery Waters

At the annual meeting held in the State Capitol, July 1, 1953, the Pennsylvania Fish Commission received a report from a conference held in Allentown on June 5. The conference was attended by representatives of the Pennsylvania Fish Commission, the Pennsylvania Federation of Sportsmen's Clubs, and officials from the State of New Jersey. The principal subjects discussed at this conference dwelt upon present reciprocal fishing rights between New Jersey and Pennsylvania, with the question of rowing boats without a license receiving much deliberation. The conference felt that fishermen should be permitted to start and end their trip on either side of the river, and recommended that changes be made in the law. Mr. Bittenbender, President of the Pennsylvania Fish Commission, indicated that representatives of the Commission should attend any further meetings of the conference, feeling that a formidable plan of cooperation could prove very satisfactory to both states.

The Board reviewed at length the present accomplishments of its land acquisition program and expressed confidence of having accomplished much in the field of public fishing.

Official action of the Board set up the following streams as nursery waters for a period of five years:

Berks County—Egelman's Reservoir, Orphanage Run, tributary to Tulpehocken Creek, and Peters Creek. Cambria County—a pond fed from Trout Run in Puritan, Pennsylvania, and a pond fed by Piper Run in Cambria County. Lancaster County—the stream running through the public park at Lititz and Donegal Nursery in East Donegal Township. Pike County—a portion of Pecks Pond, above wire on E. Branch Inlet. Venango County—that section of Lower Two Mile Run within Waltonian Park. Warren County—Dedman Run and Greeley Run, tributaries to Spring Creek. Westmoreland County—pools number one and two of the Westmoreland County Sportsmen's Association located above Rector-Forbes Forest Game Refuge. The following waters were closed as nursery waters for a similar period of five years: Berks County—Siesholtz Dam. Crawford County—Pymatuning Sanctuary. Elk County—Whetstone Run from and including the Brockway Reservoir and all waters of the same run to the source. Lebanon County—the nursery ponds of the Millcreek Rod and Gun Club. Lehigh County—the waters of the Trexler Trout Hatchery, Allentown, Penna. Warren County—Browns Pond. Wayne County—Lake Wallenpaupack, within 750 feet of the dam.



It is with extreme regret that the PENNSYLVANIA ANGLER announces the untimely passing of Carl A. Bidelspacher, North Central Supervisor of the Pennsylvania Fish Commission's law enforcement bureau. Mr. Bidelspacher's headquarters was in Williamsport where he supervised the field activities of fish wardens in all, or parts of, Bradford, Potter, Tioga, Elk, Cameron, Clinton, Lycoming, Union, Center, and Clearfield Counties.

Mr. Bidelspacher, who had been ill, was visiting in Clearfield on Monday, August 17, when he suddenly died. Some forty uniformed fish wardens of the Commonwealth attended private funeral services from his home in Williamsport on Thursday, August 20. The delegation was under the personal direction of W. W. Britton, Chief Enforcement Officer.

For, and on behalf of the entire personnel of the Pennsylvania Fish Commission, the PENNSYLVANIA ANGLER extends its profound and sincere condolence to the bereaved family on their loss of a kindly husband and father, and an efficient law enforcement officer of this Commonwealth.

THE OLD COVERED BRIDGE

(From page 3)

Though the Keystone State has its share, it holds no monopoly on these antiquated structures. About four or

five hundred exist elsewhere in the nation from Maine to Oregon, across the border into Canada and on to Alaska. Covered bridges are also found in Europe, in Germany, Switzerland, and Asia. Some in China date back more than 2,000 years. It was probably from Europe the early immigrants to this country brought the design, although in structural form the bridges

differ from those built in rural Pennsylvania.

These structures remain as engineering wonders, for few trained engineers existed during the early 19th century. They were built, for the most part, by rural folks who doubled as farmers, carpenters, blacksmiths, dentists, barbers or surgeons depending upon the requirements at the time.

PENNSYLVANIA ANGLER

But surely they must have taken pride in their work for it is apparent in the charm and strength exhibited in these old bridges.

Old timers say the pine timbers used were hewn by hand into huge beams some measuring 15 to 18-inches square. Most of them were cut and shaped less than 100-yards away, then dragged to the streamside with an ox or team of horses. Those cut farther away from the building site were floated down the swift flowing streams. Old records show farmers who supplied these big timbers and hewed them to the bridge dimensions were granted the sum of \$1.00 each. With a bridge requiring as many as twenty members, the total amount represented a tidy sum of money in those early days of yesteryear.

Laying these huge beams across the streams and reinforcing them to form the bridge must have taken a great deal of toil. But there was also gaiety at these affairs. Farm lads spent the day angling in the stream, brought creels of native trout to the women who served fish, bread and potatoes to the workmen as the bridge progressed in construction. The completion and opening to traffic was also a gala occasion when neighborliness, good cheer and happiness were felt by all.

But why were these old bridges covered? This question is often asked of old timers and the answers they give vary. Some say the stout roofs protected the timbers and flooring from the rains, snow and foul weather. Surely this must be so for the beams, unpainted, have lasted for a hundred years and more, still remain straight and strong. Others say the roofs tied the supporting beams into a single unit which could better support heavier loads.

The roofs served other purposes too. When a sudden storm rolled in from the hills, early travelers journeying on horseback or in a carriage, hastened their horses to a faster trot so both could gain the covered sanctuary and there abide the storm. Covered bridges offered refuge from the driving rains, a place to stop and bid the time of day to a passing neighbor while both rested their horses in the cool shade.

These old covered bridges were, you might say, social centers too. With few public meeting buildings in rural Pennsylvania in those days many of these structures were scenes of social life among the country folks. Lanterns bedecked the barn-like bridges on warm summer nights as the rural folks

gathered there to hold public meetings, a church service, wedding, or dance to the thin strains of music supplied by local string players. Passersby would stop, join the celebrations, and dance to the flickering lights of the oil lanterns. Perhaps your grandmother became engaged at one of these affairs, or became infatuated with grandpa while gazing through the open spaces at the moon beams sparkling on the rippling water below.

It is said that upon visiting one of these old structures during a summer evening, when the night is thick and black, you can hear the laughter of happy young folks, or the echo of clattering hoof beats and rumbling carriage wheels as a traveler passes through on his way to a meeting held perhaps a century or more ago. These old bridges seem timeless for they have withstood the elements for more than a hundred years. Through them have passed early America. The rural barefoot lad on his way to school, the farmer in his buckboard loaded with hay, the minister and doctor on their missions, the fisherman carrying creels of freshly caught trout from the stream directly below. All traveled daily through these covered bridges.

Some covered bridges, located on major highways, were privately owned and heavy tolls were charged for crossing. Old toll sheets show that fees were as much as a penny for a horse, three pennies for a wagon and team,

and five cents for a flock of ducks and chickens. But many travelers stole silently across these bridges when a toll keeper was sleeping in the shade of a nearby tree, and went whistling on their way, two to four cents richer to spend at the country store. True, Pennsylvania holds no monopoly on these old covered bridges, but nowhere are there fonder memories held of them!

To see covered bridges is to discover rural Pennsylvania. Anglers can be found wading the streams under these wooden structures and bare-foot boys dabbling a baited hook and line from them. Pennsylvania is stream-laced with these old bridges, symbols of an era that has passed from the scene, but they also mean a stream is there where the angler can don his boots, creel, and seek the fish that lie in the still cool pools and swift riffles below.

FISHES THAT SOUND OFF

(From page 7)

produce a sound described as a deep growl distinctly audible at a distance of one hundred feet when the fish is out of water. Sounds made by the sea catfish differ from those of the croaker only because they are offered in single-spaced even beats instead of rapid rolls. Actually, the sound is eerily like that of deep-throated tomtoms beating out a rhythmic jungle message.

The drums (sciaenids), renown for their vocal efforts, are fitted with a unique structure which acts as a sound-intensifying resonator, and the noises they can produce have been variously described as whistling, purring, creaking, humming, drumming, and gargling. Noises given off by drums are of sufficient volume to be perfectly audible to a person standing on the deck of a ship. In the Malay Peninsula and other tropical areas native fishermen make use of the sounds to locate shoals of drums. One fisherman listens in and signals his companions where to cast their nets!

Both the trunkfish and the globefish are credited with "growling like dogs"; and the little seahorses are said to utter a "monotonous sound analogous to that of a tambour, which is characteristic of both sexes, but is more



intense and frequent in the breeding season." An Indian species of the horse mackerel can grunt like a young pig, and a related species from Egypt is known to the Arabs as "Chakoura" or "Snorter."

The bullhead uses a portion of the gill cover for stridulation, and is able to create a scraping or groaning sound. The flying gournard uses the hyomandibular bone to make its particular kind of sound, while the stickleback, filefish, boarfish, surgeonfish, and certain other types produce noise by combining the use of pelvic, anal, dorsal, and pectoral fins.

Some members of the carp family, like the Conger eel and the loaches, create sound merely by expelling air from the air-bladder through the pneumatic duct. The Conger eel often emits a "bark" through use of this expulsion equipment, while certain types of carp add ghostly notes by tossing in murmuring sounds not unlike the incoherent muttering of some distressed character in an unhappy predicament.

While the hogfish is not a boisterous noisemaker, it can grind out a fairly good output of sonic volume in the form of short pig-like grunts—hence the name *hogfish*. The vocal efforts are spontaneous, usually bursting forth in four or five raucous rasps. Like the triggerfish, the hogfish also makes use

of the pharyngeal teeth in sending forth its own contribution to underwater noises.

The Spot, a close relative of the Croaker, produces a keenly pitched wild-duck honk. The timbre is different from that of any other noise-making fish, and is readily identifiable by many amateur naturalists specializing in the science that deals with fishes. Being non-gregarious the Spot is unable to concentrate a noisy concert in a small area, but he does a creditable job in sounding off with highly individualized honks.

What causes fishes to produce sound? Actually, the motivating or impelling force is in most instances a well-sealed mystery. It is known, of course, that grunts usually "grunt" when in distress. Even baby grunts an inch long have been heard expressing their dissatisfaction when circumstances placed them in a position justifying aquatic SOS signals. In the various studies of reasons for sonic efforts of fishes several new sound-producing types have been discovered. Two of the most notable ones are the *Garibaldi* of southern California and the coral reef fish.

In a preceding paragraph mention was made of underwater investigations of fishes noises by the Navy Department. Certainly it is appropriate to here point out that the Navy had more

than an academic interest in sub-surface sounds. The sounds created by fishes, shrimps, and other submarine creatures caused a significant degree of confusion during World War II. After working out a functioning model of an instrument that would detect submarines, the Navy discovered that the mechanism brought in so many unidentified noises that the sound of real submarine motion could not always be filtered out and recognized with any safe or positive measure of certainty. To complicate matters, no accurate information on sounds made by submarine life was available.

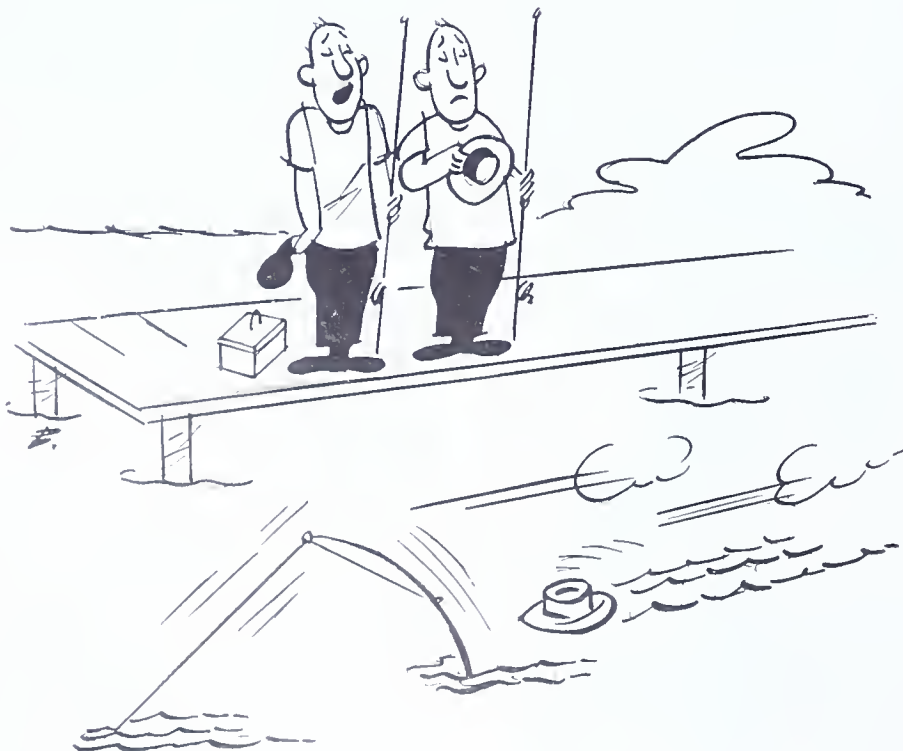
Something had to be done, and the appeal for practical aid naturally was focused immediately on the Naval Ordnance Laboratory in Washington, with Dr. M. B. Dobrin acting as one of the chief technicians.

To measure the intensity and frequency of background water noise in open and protected waters the Navy recruited a staff of capable individuals from the Naval Ordnance Lab itself; and from the Shedd Aquarium; U.S. Fishery Biological Lab; and the Divisions of War Research of both Columbia University and the University of California. After investigations were carried out at various points along the east coast of the United States the research experts learned to screen out natural underwater sounds, and finally exclusive sound recordings were made of fish noises.

Results of the sound survey were amazing. The capabilities of fishes to sound off were most significantly registered in the impact-laden fact that they could give rise to octave sound pressures of more than a hundred dynes per square centimeter, and noise from the multi-sources extended over the entire sonic range of frequencies.

It was learned that wind, waves, and tidal currents build up a measurable volume of water sound, but it rarely kicked the indicator needle above a single dyne per square centimeter, and in the octave sound band it usually failed to run that high. Conversely, as Dr. Dobrin pointed out, "biological sources can be responsible for sustained noises with an octave pressure of up to several hundred dynes per square centimeter . . ."

In making background measurements where underwater noises were particularly intense, the Ordnance Lab used hydrophones and special recording discs. These were later played through an octave analyzer into a series of "Esterline-Angus tape re-



"There, inch for inch and pound for pound, goes the gamest fisherman I ever knew."

corders." Spectra were calculated and plotted from the octave tapes. All submarine noise recordings have been preserved and dubbings are available to any biological lab which can put them to worthwhile use.

Systematic efforts were made to record all sonic fishes, and to identify their sounds. The studies and recordings, which covered areas from Cape May to southern Florida, under a wide variety of time and light conditions, had a three-fold purpose: to determine which species of fishes were sonic; the conditions under which such species could be induced to produce sounds; and the general nature and magnitude of such sounds. After the survey was over it was possible for those in charge to jot down the words: "Mission satisfactorily carried out."

It has already been pointed out that no plausible answer amply covers the question, "Why do fishes sound off?" Are they "talking?" Are they practicing a form of "echo ranging?" Or are guards or sentinels duty-bound to cry out warnings of impending danger?

A hundred more questions could be added. We do know that fish voices are so completely accepted in the functions of everyday realism that they have for ages played a part in legend, song, and myth of various lands. For an example we have to look at the Greek myth about the weak-fish. It was this fish, occurring abundantly in Mediterranean waters, that figures in the song of the sirens in the Homeric fable. Doubtless the story originated in the fact that shoals of these fishes may produce a singing sound not unlike the droning monotone of a great number of hoarse-voiced cicadas.

While a rather widespread study still is intermittently being made of sound-producing fishes, it isn't likely that a sharply improved conception of the motivating behavior pattern is directly in the offing. As observations are being made, and new knowledge is being gained, someone may even hit upon the idea of breeding especially with emphasis on capacities for sound tone and variety—perhaps even interpretable sounds! So be alert, Mr. Angler—you may someday face vocal repudiation from the realm of fins and scales for approaching improperly the big one that "argued back and won his freedom!"

WOMEN ANGLERS I HAVE KNOWN

(From page 13)

terested in the same thing; but they try to learn much more about the art than the women do. Some go so far as to lose sight of catching fish entirely in their pursuit of perfection in fishing—and I've never seen a woman reach that point!

Let's take Peggy as an example. She can hardly tell one fly from another, ties miserable knots, casts poorly, is careless about the way she handles a hooked fish, and seldom can remember which is her fly rod among those taken on a trip—but, she catches more fish than her husband. She does it by persistence, by a grim determination not to fail.

She has fished over much of the continent east of the Mississippi, from Canada to Florida, and can't recall the names of the places where she has angled because maps mean little to her—but she caught fish wherever she was, while her husband often was skunked. Once she even caught a sailfish in Florida on a handline, and was sore because she hadn't caught it on a rod, not realizing that taking a sail on a handline was a fishing miracle that the men in the party would talk about for a long time.

When she first started fishing, she couldn't bring herself to break the necks of trout before putting them in her canvas creel—so she put the live fish inside, placed the creel on the ground, and dropped a big rock on it. One time the fish "came alive" in the bag, and started flopping around. Wading ashore, she found a really large stone, and dropped it on the creel, killing the fish all right, but also smashing a compact and crushing some cigarettes which she carried in the creel. She never could bring herself to put bait on a hook, so she never fished with anything but artificials. However, she *fished*, harder than anyone I have ever known.

Once I was driven from a stream—Bermudian creek in York county—by a violent electrical storm. I just couldn't see through my glasses any more. After the storm, I started out again, and came across a little old lady with grey hair calmly fishing on, although she was soaking wet. She "just liked bass fishing, and it was too

far to go home when the storm broke." One of the nicest fishing letters I ever received was from an old Negro woman who gently reprimanded me for saying that I didn't especially like carp as a sports fish, and then told me how she had fished for carp all her life.

I have never gone anywhere, even in wildest Canada, without finding women anglers sharing the sport with their husbands. Far up on Wollaston Lake in northern Saskatchewan, beyond all roads, I found that Sara Finch was the only person who shared her husband's love for angling for lake trout and Arctic grayling. Few party-boats put out from the Jersey coast—or anywhere, for that matter—without their complement of women anglers. They get seasick as well as the men, but they keep on fishing. There is scarcely a trout stream, or bass water, in Pennsylvania that doesn't have its quota of women anglers. I have crossed bridges in Des Moines, Iowa, late at night, and found them lined with men and women fishing for catfish in the river. I have witnessed bridgeways and causeways in Florida dotted with men and women fishing.

They do this sometimes in the face of actual hostility on the part of men. One woman told me that she was fishing a pool on a trout stream when a man came up and told her to get out, that that was his favorite pool and women had no right to be on it. Naturally, she told him to go to the devil—with icy politeness, of course—and continued fishing. I have seen men deliberately wade through water into which a woman angler was casting. I have heard other men swearing about the "damned women" they had met along the stream, and who had caught more fish than they had, if they had been truthful.

The truth of the matter is that women are here to stay, and any man who actively resents their appearance at his favorite haunts is discourteous, jealous and given to an inferiority complex. He just doesn't like to be "shown up" by women.

The woman, of course, must show good sportsmanship, and if she does, she is entitled to the same consideration as a man would be. As mentioned before, most women feel constrained to be topnotch sportsmen because they realize they are fighting opposition. There are some women anglers, however, who pretend an interest in fishing simply because some man they want likes angling, and they are worth no more consideration than the man

who pretends an interest in interior decoration just to please some woman. The fakers among women are easily detected. They talk too much about it! The woman who actually likes fishing fishes a lot, talks little about it.

I do not know many "famous" women fishermen, but if men want proof that women anglers are here permanently, they need only look at world record lists for salt water big game fish, and at entries for annual fresh water fishing contests. It isn't by accident that women's names creep into the lists. They are there because the girls plug away day after day under exactly the same conditions men face, and it isn't surprising that a fair number of the big fish go to them. Some, like Mrs. Michael Lerner, are lucky in having the wealth to go where they wish—others, like plain Jane Doe, just go. My friend Walt and his wife, Madeleine, travelled by a rickety old Ford all over Pennsylvania on fishing trips. Across the Delaware, in New Jersey, I came across a man and his wife living in a trailer beside a trout stream because they liked to fish, had no money to pay fishing camp rates.

No figures are available on how many women fish. Few states keep such statistics, which is a pity because accurate license sale records breaking down the total anglers by sexes would open the eyes of those who are inclined to belittle women fishermen. Indications are that the time is not far distant when as many women as men will fish. Iowa, which has kept separate records, found 35 per cent of the licenses sold one year went to women. In this state, such records wouldn't be too accurate because Pennsylvania is conveniently close to salt water, and many of its fishermen, men and women, angle in the bays and ocean where no license is required.

Some states, like North Carolina, make a deliberate bid for feminine anglers with trout streams set aside for their use only—but the average woman doesn't ask such favors. All she wants is a chance to go along on an equal footing with the men, despite the criticism of some men, despite ungainly clothing that was never designed for the feminine figure, and despite such interruptions as childbirth and associated family problems. The modern attitude is best expressed, perhaps, by a girl angler encountered along the seashore by a friend of mine.

He noticed her casting into the surf next to him, an attractive young thing

all by herself. After while, she put her rod in a sand spike and walked down to my friend to ask him the time. When told it was five o'clock in the afternoon, she exclaimed "Darn it! I have to go back to Philadelphia just when the tide's getting right. I'm going to be married tomorrow morning!"

PLUG CASTER'S BONANZA

(From page 21)

model SP55R-F. When purchased it was one piece construction, but for convenience in carrying I cut and feruled it. The blank itself without accessories weighs just a shade under two ounces. Complete with handle it is six feet five inches in length. Since it was purchased simply as glass blank I had to mount the guides and provide handle and case. It is listed as a three-eighths ounce tournament rod, but is amply strong for most of our eastern states game fish. The butt portions are reinforced, which places most of the action up toward the tip where it belongs, gives good hooking quality, and increases somewhat the weight range of lures which can be adequately handled. It also gets away from an unsatisfactorily high arc when casting, a fault of some rods as long as this. Lures as light as one-fifth of an ounce will bring out good rod action and lures of half an ounce will not overburden it. A 7 lb. 2 oz. smallmouth, was caught on a similar rod. It stood the test without fault. Within the past two years nearly all major tackle companies have begun to market rods in the six foot class with extra light actions. I am quite sure that any of them could be used with equally good results.

Care must be used in selecting a reel to correctly match and balance these long, light rods. Excessive weight at the hand detracts from the pleasure of casting and can be tiring. Then, too, many of the heavier reels are designed to correctly spool a line of about fifteen pounds test and thus do not perform well with light lines. The reel illustrated is a Shakespeare model 1973D. It is light, silent, fast and designed to properly lay a light line. I use with equal pleasure and success a Heddon

P41N, a Coxe 95C, a South Bend No. 60, or a Langley Lurecast. Any of these reels will correctly balance the light six foot rod. It is simply a matter of personal preference on the part of the user as to which suits him best.

Nylon lines have so improved over the past few years that the diameter-strength ratio has been considerably reduced. Some of the nine pound test lines of today have a smaller diameter than the five pounders of a few years back. After all, it is the diameter and weight of the line which make easy casting, not its breaking strength. The light outfits perform best with lines testing from five to nine or ten pounds. The soft braids spool better than the hard ones but do not last as long. It happens that the line illustrated is Herter's Cuxhaven in a five pound test but in this case, the rated test does not mean much since the actual breaking point is nearer eight pounds. Any of the lines now produced by our leading manufacturers in tests ranging from five to ten pounds and not too hard braided will perform beautifully and correctly match rod, reel, and line.

Just so I couldn't be accused of armchair casting I briefly checked the performance of my outfit on some measured casts. Now I'm no great shakes as a caster so these results are not intended to illustrate the maximum effort of which the outfit is capable. Using a new Heddon Tiny River Runt, just purchased in anticipation of next season's fishing, I averaged 106 feet on three casts with this lure which the maker says weighs one-fifth of an ounce. As a further test I also tried "Old Faithful," a South Bend Midge-Oreno (three-eighths of an ounce) and averaged 116 feet on three casts. For the most part casts of that length are unnecessarily long in actual fishing. True, once in a while you may need a lot more distance than that but mostly short, accurate casts are the more productive. Try hooking a bass at the end of a very long cast and you'll know what I mean.

Some persons will undoubtedly, and rightfully, question the use of such an outfit on the basis of strength and durability. I've used mine for five years, which is about as long as they have been on the market, without mishap. Sure, I've lost an occasional plug, but not on fish. After all, such an outfit without a leader doesn't make sense. I use, and don't recommend, a four pound test leader. Six is better. If you are the kind of fellow who does a bit of horsing now and then

in spite of good intentions to the contrary, you can make the light outfit quite safe by using the light leader. It will break at the knot where it is fastened to the line or at the swivel, if you use one, before any major part of the tackle can be damaged.

I have been asked many times why, if I prefer very light lures, I don't use a spinning outfit. That one is easy; I don't like them. To me they feel clumsy. I'm not condemning spinning. It just happens that I dislike it. At the same time I hasten to acknowledge my indebtedness to the spinning enthusiasts for more and better light lines and midget lures. To them goes the major credit for nudging our tackle companies into faster production of these items. The light casting outfit can hold its own against any form of casting in weights from one-fifth of an ounce upward.

The only sound method of choosing a rod, as well as a line and leader, is to determine what weight lures are to be cast; then balance the tackle around them. On that basis the outfit here described is soundly assembled and well balanced. Six years ago such an outfit would have been impossible to get if it was intended to cast lures over the weight ranges I have indicated because no rod material had been perfected which would absorb the strain without damage. The glass rods have changed all that. They have brought the all-around rod closer to reality. You can safely use such light, balanced tackle without fear of rod damage and at the same time get the maximum pleasure from your fishing. Good luck and good fishing!



"I couldn't get a baby sitter."

SEPTEMBER—1953

BIG ONES FEED BY NIGHT

(From page 19)

motor while I rowed the half mile to fish on the way.

By the time I arrived, after picking up a twenty-inch walleye from the choppy waves enroute, the other fellows had three walleyes and a bass. But, from the time I entered the narrows until I drifted past the other boat, I had three bass from sixteen and one-half inches to eighteen and three-quarters inches in length. All in about fifteen minutes. Then the moon came up and the fun was over.

But the other two had actually lost more fish than they caught while I was rowing to them! And, each fish was hooked on a surface lure.

Trout fishing at night takes infinite patience and considerable skill. But in many respects, you will find tactics reversed from daytime angling. A big dry fly, bigger than anything you normally use in the daytime, is best.

Since the strike of a trout is much quicker than a bass, and the fish will spit the fly out almost immediately, you must usually keep a tight line. You can fish a big fly for trout in the same manner that you do for bass . . . by skittering it over the surface of the water. Rarely will you connect in this manner in the daytime, but darkness hides much even for the trout.

Don't miss the shallows. In very quiet water, you can chance a normal lie with your line if you wish in the hope that you will hear the strike in time to connect. But you must bear in mind many times a big fish will suck an insect under almost soundlessly.

A moving fly or bug is generally considered best for bass. But often I have heard the strike at a motionless fly rod lure and still managed to set the hook in plenty of time. However, it is not unusual for a bass to strike an artificial and run with it. Not so the trout.

Lights are sometimes necessary, but use them only when absolutely necessary. From the reaction most fish take when a light is flashed, there is good reason to believe it will alarm them. Too, a light throws shadows over the bottom of the stream which move with the ray and are almost certain to frighten the fish. Keep the light off

the water when it is necessary to use one.

You can change flies without a light. It is relatively easy to work the tippet through the eye of a fly hook by holding the ringlet against the tip of your tongue. Touch the tip of the tippet to your tongue next to the ringlet and work it through by feel. Not sanitary, perhaps, but it is effective.

Of course, surface lures are almost a necessity in night fishing since you are frequently fishing very shallow water and weed pockets. But, choice of color becomes an interesting question.

It is generally conceded that dark colors show up best against the doubtful light afforded by the stars. However, I have made some of my best night catches on bass with a red and white lure both in plugs and flies. On trout, though, the very dark patterns seem to work best for me. If walleyes are present where you are fishing for bass, they are likely to take the same plug that works well on the bass.

Sometimes you hear arguments as to whether a smallmouth or a largemouth bass hits better at night. I haven't noticed much difference. Smallmouths seem more partial to the smaller lures such as are used with a fly rod, but my biggest was taken on a good-sized plug.

Those who would seek out their favorite haunts for fish when the sun is gone must work hard and diligently at their sport. And, yet I can only wonder at those who point the nose of their boat toward the dock and start wrapping up their rod when the sun goes down. They are missing some unusual thrills in fishing . . . thrills heightened by the suspense that comes in not knowing until the battle is won what prize it brings.

For, big ones feed by night.

LOBSTER'S LITTLE COUSIN

(From page 20)

a potluck affair. Smallmouths and rock bass are particularly susceptible. The list also includes brown trout, large mouths, catfish, carp, buffaloes, sheepshead, and at least one jumbo red-horse I know about. Lake Erie anglers could no doubt add walleyes and saugers to the list.

There's no particular trick to catching or keeping crayfish. Fact is you can take them easily by hand—without any equipment at all. You have to be fairly quick and agile—and you have to avoid a pair of pincers that aren't exactly dull—to get very many this way. But practice makes perfect and the so-called oldtimers can get a day's fishing supply in no time at all.

Crayfish are also easily taken with legal seines. Minnow traps with cone or funnel type entrance are good, too. Bait one of these, preferably one made of hardware cloth, with a piece of beef neck. Let it stand for several hours and you should have plenty of bait. This method will only take hardshells, however.

Some few patient anglers have collected burrowing crayfish for bait by digging them out of their holes in clay banks or in heavy clay soils near water. This is too slow and sometimes too unrewarding. Actually it's a takeoff on the blue herons and other wading birds which have a peculiarly interesting method of taking these burrowing species. The hole is partially closed with a pebble or chunk of clay. When the crayfish comes up to remove it,—socko, he's caught. Down the bird's long gullet he goes.

You can keep crayfish in minnow tanks or in any of the containers that successfully keep minnows alive for short periods of time. It's well to feed them pieces of meat from time to time. It's also well to keep the smaller ones separated from the jumbos for they have no laws among them outlawing cannibalism. Keep the molting craws from the others, too, because they are helpless, or nearly so, at this period in their lives. And be sure, always, to remove dead crayfish and excess meat to prevent contamination.

If you have a large enough container—and if your supply is large enough—you will have at least a few soft craws all the time. You can delay the hardening of their shells for extended periods by keeping them on ice—or in the refrigerator—but it's necessary to use them quickly after removal from the low temperatures. They'll die soon afterward in any case.

There are many ways to hook and handle craws as there are fishermen. Well almost, anyway. Most popular is using the whole works hooked through the tail, point up or point down. Generally the basses swallow the critters tail first so it's not a bad idea to use the tail method of hooking. I believe

the craw, soft or hard, will live longer too.

Some anglers remove the pincers; some use only the tails. Some peel the tails while the less painstaking members of the fraternity leave the shell where it belongs. This is good for catfish and carp, but perhaps no more so than the whole, undissected product. You can get plenty of argument, though, no matter which method you use.

Sometimes soft-shells are hard to keep on the hook very long, or for very many casts. You can always tie them to the hook with a short section of thread or nylon leader. Or you can solder a piece of fine, pliable wire to the hook shank. This will serve to fasten the baits securely as long as you can keep your casts from snagging on the bottom. And speaking of the bottom, that's just where to fish your crayfish.

Crayfish are better adapted to stream fishing. The largemouths and other fish of impounded waters will take them, of course, but considering the vegetation and other problems so usually presented, it's sometimes exasperating business. Try them, instead, where glides and riffles break around large rocks and boulders. Drift them where the stream depth drops off suddenly. Never pass the tail of a pool without drifting every bit of it thoroughly. Make your drifts naturally; stay away from heavy sinkers and such as that.

After the strike, you must proceed cautiously. Here haste makes waste. Allow the striking fish some time to inhale the bait to a point where the hook is inside his mouth. Many fish, especially the larger bass, take crayfish gently and almost imperceptibly at times. You almost have to sense the strike. It's another matter though, when you sink the hook into solid resistance.

The same evening that Charlie caught the big carp, he exposed me to a brand new use for crayfish. While I collected firewood and a pail of water from a nearby farm house, he collected a bucket of the lobster's little cousins. That done, he removed the tails and peeled them. The tails were then dumped into a pot of boiling water where they stayed for perhaps five minutes. Charlie then removed the craws, salted them—and we ate them.

Just one more comment on boiled crayfish—I like 'em a little better with cocktail sauce.

WATER DOG HUNT

(From page 11)

noticed a diminishing number of hellbenders in the Venango County creeks where they have collected them commercially. While fishermen may consider that good news, herpetologists are of the opinion waterdogs do little or no harm to the fish population of a stream.

In his own investigations of stomach contents, Paul Swanson has found crayfish to be the predominating food taken by hellbenders. Indeed, a stream that contains bass will likely be ideal for hellbenders, for both seek the same food . . . crayfish.

In addition, hellbenders are noted scavengers and often feed on dead or dying fish.

Like other members of the salamander group, hellbenders propagate by laying eggs. These are deposited in rosary-like strings under rocks in stream beds.

The hellbender should not be confused with another similar aquatic salamander the mudpuppy (*Necturus maculosus maculosus*), which is also commonly called a waterdog. This one has bright, bushy, red external gills on each side of the neck. Generally, it is not as common as the hellbender.

"Although I have never observed a hellbender out of water on its own volition," Paul Swanson declared, "I know that they will live a few days out of water, if kept cool and moist. We ship them in damp sphagnum moss with a fair amount of success."

In the course of 17 years work with hellbenders, the Swansons have tried a great many experiments and done a great deal of revealing research.

That even includes cooking and eating them.

"We found them palatable, but quite tough," Dave Swanson stated. "The toughness may have been due to our cooking, or we might have just picked some old ones," he added.

"What did it taste like," I asked the brothers.

They looked at each other, puzzled for an answer. Then Paul asked me:

"Have you ever eaten a well-cooked shoe?"

KEEP PENNSYLVANIA GREEN!

PENNSYLVANIA ANGLER

The Editor's Angle

Successful Angling Year at Harrisburg's Italian Lake, Optimist's Fishing Project. Prizes Awarded



Mayor Claude R. Robins, City of Harrisburg, welcomes young fishermen while a city park policeman and Dr. William J. Ross, conservation director of the City Park Commission look on.



James Lohman, 12, Harrisburg, registers his 16 1/2-inch bass with Ray Shutt, Chairman of the Optimist Fishing Committee, as the Annual Fishing Contest for children opened at Italian Lake. It took James only 10 minutes to make the catch.



Lucky young man with the fish! Project is open Tuesdays 4 to 7 P. M.; Saturdays 8 until noon, contest closed last month.



Registering young anglers into Italian Lake Children's Fishing Paradise, Harrisburg, Pa. The Opti-Mrs. also played an important part by registering youths, supplying identification buttons.

The first day of the Optimist Fishing Project opened last June 19th with the kickoff made by Harry O. Dayhoff, Director of Parks of Harrisburg, Pa.

Registration on first day was over 900 boys and girls. While some good catches were registered, the size or

numbers didn't matter because youngsters who participated and parents who watched had one grand day of fun plus a good glimpse of excellent development in sportsmanship.

The project, started six years ago by the Optimist Club of Harrisburg, has

grown considerably, this year the channel between the two lakes will be opened allowing fish from the lower lake to reach the upper lake where the boys and girls fishing project is located.

No person can estimate what this

project has accomplished for the children of the community over the years but it has certainly offered boys and girls an opportunity to get out and fish, work off excess energy and keep them off the street out of the way of possible harm and danger; a chance to develop real sportsmanship and a regard for the rights of others.

Adults and parents could profit by observing this fine project that supplies some of the answers for our troubled times. The Optimist Club is to be commended on their splendid work and they, through the pages of the PENNSYLVANIA ANGLER, extend an invitation for parents to come out, bring their youngsters for a swell day of fun and fishing at Italian Lake, Harrisburg, during the rodeo seasons each year.

Dear Sir:

Here is photo showing Mrs. Larry Sapudar of Philadelphia holding an 8 lb. 13-oz, Walleye, 30½-inches long she caught trolling in Lake Wallenpaupack. Would appreciate seeing the photo in THE PENNSYLVANIA ANGLER.

MRS. W. A. METZGAR
Nazareth, Pa.



YOUNG ANGLERS FISH
GREEN PUMP DAM



Above photos are youngsters on location at Green Pump Dam, Williamstown, Pa. children's fishing project stocked by the Pennsylvania Fish Commission and open to all young anglers under 16 years of age. One little guy shown in pix has mighty carp caught at the project, look at that rod bend on another. The third is photo of a Fish Commission truck stocking the dam.



Mrs. Larry Sapudar with
Big Walleye.



Roger Fultz with his catch.

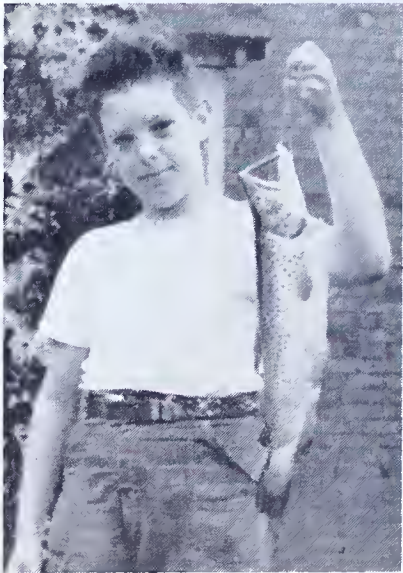
LOST! LOST!

Last August 16, along Black Moshannon, spinning rod and reel treasured by Elmer P. Caldwell, 2309 7th Avenue, Altoona, Pa., was left behind on the bank in confusion of loading Mr. Caldwell, an invalid in an armchair, into the car. We appeal to any sportsman who finds or found this gear to return it to Mr. Caldwell at the above address.

Dear Editor:

This eight-year old boy caught this sucker last spring in Bald Eagle Creek and is very anxious to have his picture in THE PENNSYLVANIA ANGLER because a couple of years ago I sent a picture of his older brother to you holding a fish and you put it in the ANGLER. I have taught both these boys in Beech Creek, Pa. schools. This young fisherman's name is Roger Fultz, son of Grover Fultz, Beech Creek, R. D.

MRS. W. A. CLARK
Lock Haven, Pa.



19½-inch, 31lb. Brown Trout taken by 11-year-old Francis Condelli of Arnold, Pa. on Pithole Creek, Venango Co.

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PENNSYLVANIA ANGLER

1953

LAKE WALLENPAUPACK - POTHOLES OF THE SUSQUEHANNA - ERIE LAUNCHING

SPIN TROLLING - BIGGER THE PLUG - SPINNERS FOR SMALLMOUTH



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1953 — PENNSYLVANIA WEEK — 1953

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HON. JOHN S. FINE
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PENNSYLVANIA ANGLER

VOL. 22, No. 10

OCTOBER, 1953

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THE COVER: . . . INDIAN SUMMER in Pennsylvania. View from Council Cup Hill, at Wapwallopen overlooking the Susquehanna Valley toward Wilkes-Barre. In distance is village of Shickshinny, an Indian name for "end of five mountains."

—Photo by Shiner

COVER 2: . . . Another view of beautiful Susquehanna Valley in late Fall looking toward Berwick, Bloomsburg and Danville.

BACK COVER: . . . Young anglers return with catch at sundown.



George W. Forrest, Editor

1339 East Philadelphia Street, York, Pa.

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Lake Wallenpaupack

Pennsylvania's Largest Inland Lake . . .

**Regular Stocking Stop of the
Pennsylvania Fish Commission**

By DON SHINER

TIME was when much of Pennsylvania was storybook land, viewed only as irregularly shaped land drawn on rough pieces of paper. The many remote parts of the state were, for most of us, far removed from reality and to travel a hundred miles was a daring trip to be made in only the wildest of dreams. Today all this has been changed. Now any portion of the state is within a day's traveling and we can cross, re-cross and wander at random over the broad highways in search of new fishing grounds. Many travel fabulous distances, even to other countries, to experience fishing thrills, but others are discovering Pennsylvania and its mecca of freshwater fishing grounds.

And what are the vacation voyagers, traveling fishermen of today finding? A land of sloping mountains, rolling farmland and valleys, of winding rivers and rushing mountain streams as well as a number of clear lakes and ponds. Located geographically in the headwater zone of three great rivers, the Delaware, Susquehanna and Ohio, these vast river systems have a countless number of tributaries, some originating as tiny springs, others from great inland lakes. Among these, travelers are discovering Lake Wallenpaupack, the largest inland lake found wholly within Pennsylvania's 45,000 square miles. It is one lake that has become the playground for thousands, many of which are fishermen!

Lake Wallenpaupack is located in Pike County, 23 miles east of Scranton, in the scenic Pocono mountain region. Much of it, a quarter of a century ago, was composed of marshy, swampy land. Seizing an opportunity to convert this land into a lake of preponderous proportions, private enterprise began the construction of this project in the year 1924, completing it in a near record time of two years. The dam's breast, only 1,280-feet in width, impounded water to the extent of covering 5,670 acres of land and having a shoreline of approximately 55-miles! Not only had the Pennsylvania Power & Light Company secured a major source of electric power with which to perform a service to thousands of residents in that area, it had fashioned a lake that was soon to create a wave of excitement among fishermen. Soon after the lake was completed. The *Pennsylvania Fish Commission* supervised the stocking of perch, pickerel, bass, walleyes, catfish and sunfish.

One has only to glance at a road map to find that Wallenpaupack Lake is surrounded by good highways and is only a few hours drive from all but the mid-west and western portions of the State. And completely surrounded by roads, the drive around the lake provides a most scenic route. Cottages and campsites, churches, theaters, restaurants, garages and boat liveries afford accommodations to families by the day, week or summer season. There are also public camping sites, four in all, owned and operated by the Pennsylvania Power & Light Company for the convenience of vacationers. Requiring registration, the fees for camping privileges are low enough for the family of most modest means finds them of no hardship. Boats are readily available at liveries found completely encircling the lake, with the majority found on Route 507. In fact the registered boats on the lake each year total 1500, with an actual count of 1,497 boats in the year 1952.

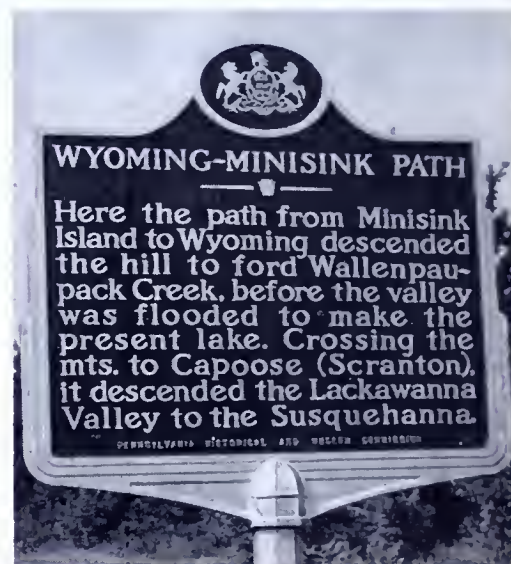
As with other power dams, water is drawn from the lake nearly every day of the year for power purposes, but because of its large size there is no appreciable effects on the lake elevation from one hour to another. During periods of drought when the inflow into the lake is not sufficient to replace the water used to produce power, there is a gradual lowering of the lake level, noticeable over a period of a week or month. In the early spring when the winter's accumulation of snow and ice melts, the lake level rises and normally reaches its maximum elevation by June 1 and is estimated to reach depths of 65-feet at the deepest points. Geologic Survey maps show that 24-streams empty into this lake, and the angler will find many offering fine trout fishing.

Fishing in the lake is something rather remarkable. The lake has long enjoyed a reputable name for producing exceptionally large walleyes and bass. It is not uncommon for anglers to locate schools of walleyes in the deeper and graveled bottom portions of the lake and en-

(Turn to page 24, more photos on pages 4 & 5)



HISTORICAL MARKERS, erected by the Pennsylvania Historical and Museum Commission tell of significant events of history in the region of Lake Wallenpaupack.



WALLEYES are popular fish in the lake but bass, catfish and sunfish offer sport for thousands of anglers each year. Some walleyes taken have gone around the 10-lb mark, nice fish! Trolling with worm and spinner combination has proven best.



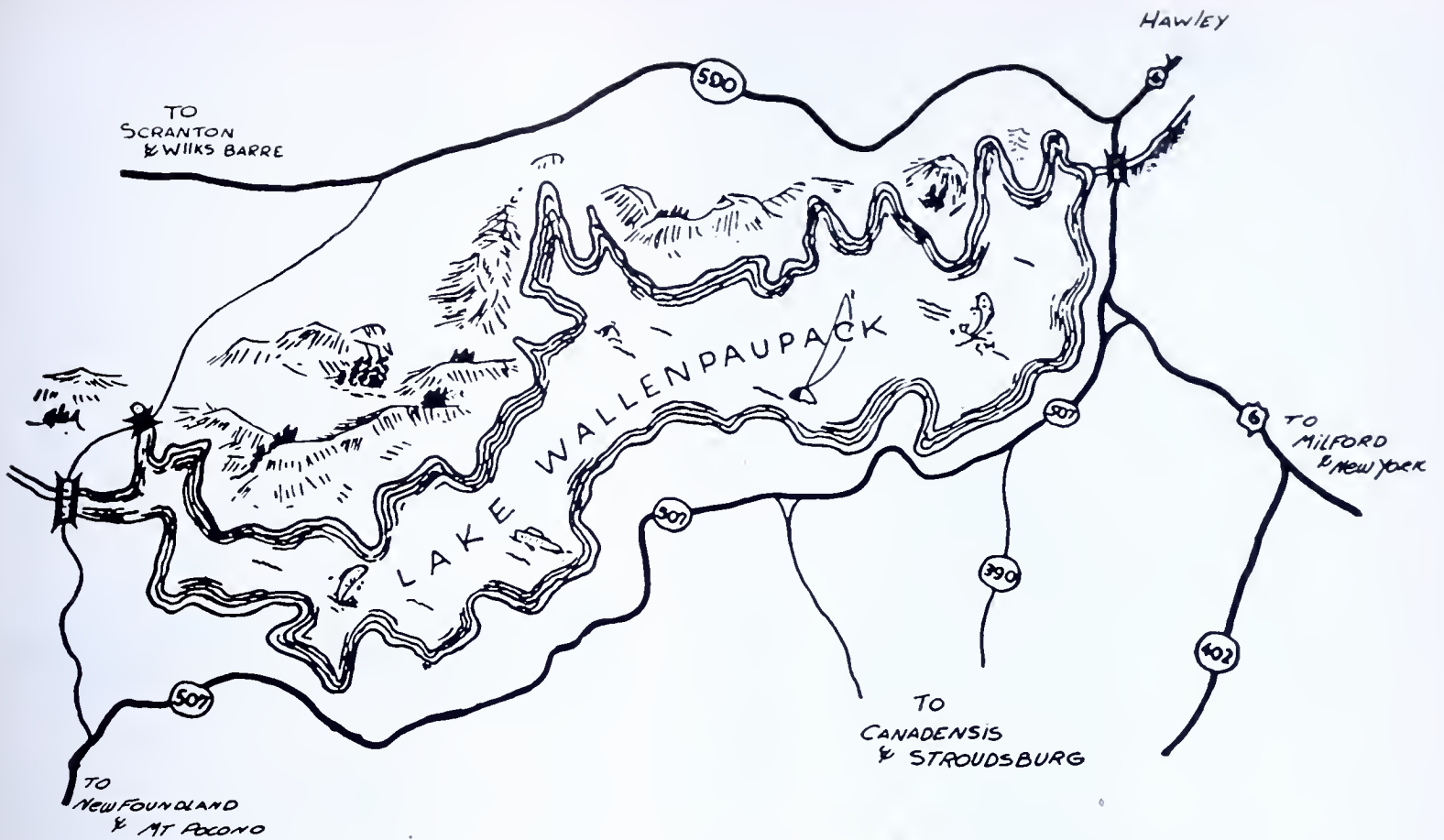
COTTAGES AND CAMPSITES have been built along the shore of the lake, many housekeeping cottages available to rent by the day, weekend, monthly or seasonal basis. Fees at public camp sites are small: up to 3 days, no charge; 3 days to 2 weeks, \$3.00; over 2 weeks, \$10.00 all a stone's throw from the lake shore.

FAMILY FISHING is popular at Wallenpaupack from wharves and shoreline, and fishing is usually good!



POWER DAM breast is 1,280 feet wide, has maximum depth of 68 feet of water near dam. Huge flow line or pipe that carries water to power station can be seen at lower left of photo.





WALLENPAUPACK OUTLINE is shown in map, the lake is 5,670 acres and a 55-mile shoreline. Good highways make the lake within a day's driving range from any point in Pennsylvania.

BOATS of every description are found here, the actual count of boats in 1952 reached 1,497. Docking facilities and launching points are available for anglers seeking to try their luck in the numerous coves and bays of the lake.





Coalescent pot holes. Note circular grooving. In 1947 over 10,000 persons visited this area in the Susquehanna River bed after article by Dr. Herbert H. Beck appeared in Lancaster newspaper.

The Conewago Pot Holes of

The Susquehanna River

Few anglers are familiar with the unusual potholes in various sections of the Susquehanna River. These peculiar formations are particularly noticeable during times of drought.)

By DR. RICHMOND E. MYERS

Geologist, Pennsylvania Water & Power Company

—Photos by Ed Schopf

THE SUSQUEHANNA is a remarkable river. It is startlingly different from all the rivers on the Atlantic seaboard in a number of ways. For one thing, it more closely resembles all the great rivers of Africa (except the Nile) in that its greatest fall is in its last forty miles, and as a result its mouth is choked with rapids and falls, known to the Susquehanna rivermen as "riffles." These riffles have exerted a tremendous influence upon the utilization of the river, for had they not been present the Susquehanna would have been a navigable river, and the Hudson River Day Line would never have been able to maintain its claim, offering the most beautiful steamboat ride in America.

The Susquehanna's riffles are not confined to its last forty miles. Wherever the river has carved one of its great watergaps in the ridges above Harrisburg, the upturned roots of the mountains still lie athwart the course of the stream, forming a group of rapids that in the past have been as serious obstacles to navigation as the series of falls below Turkey Hill.

Still another type of riffles are to be found crossing the Susquehanna. Between Middletown and Bainbridge three ridges of a hard rock known to geologists as diabase, and frequently called trap rock, block the path of the

river. These rocks are known as Middletown Rapids, Conewago Falls, and Haldeman's Riffles respectively.

For years this triple series of rock barriers has played a significant role in the economic picture of the whole Susquehanna Valley. Prior to 1800, most of the goods floated down the river on flatboats, arks, rafts, and similar river craft, were landed at Middletown and shipped overland from there to Lancaster and Philadelphia on Conestoga wagons, rather than attempt the passage of the dangerous riffles below. The first canal dug in Pennsylvania was excavated on the York County side of the middle

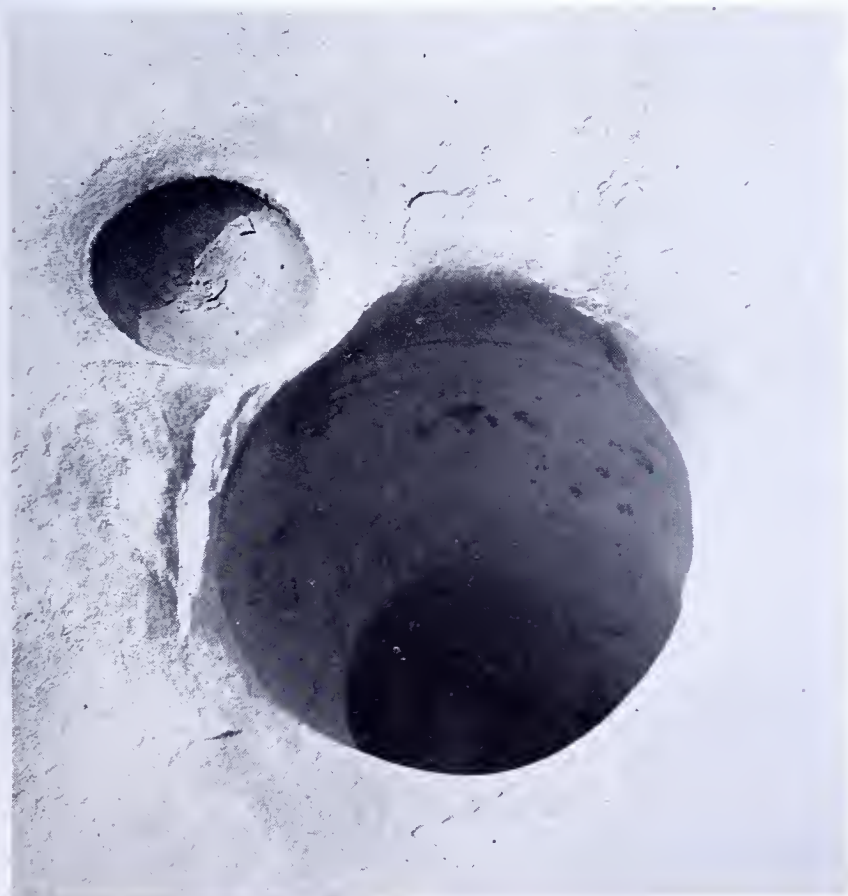
and most dangerous of these riffles, in 1796. This was the Conewago Canal, and although it helped it did not solve the problem. Other canals and other schemes to render the Susquehanna navigable came later, but the riffles remained always to render the passage of the river an extremely hazardous operation.

What about the origin of these three riffles? A few words might be in order on that subject at this point. Diabase is an igneous rock, that is, a rock that at one time was molten. Over two hundred million years ago, in the

(Please turn page)



One of the larger pot holes in the vicinity of Conewago Falls, near Middletown, Pa. Pot holes are not uncommon, found in various parts of the world.



Smaller hole is about one foot in diameter, about 8 inches deep. Larger hole is 2½ feet in diameter and from 3 to 4 feet in depth.



Deep holes, probably plunge pools with depths about 5 feet. Devil's Kitchen, Witch's Washtubs, Governor's Stable are names of many grotesque, bowl-like formations. Visitors to the region can use own imagination in describing the varied rock shapes.

Shallow pot holes. Note rock and pebble grinders in bottom of hole which revolve around and around with the current.



period of time that geologists have named Triassic, great masses of molten rock materials known as magma began to push upward from considerable depths towards the surface of the earth. As this material slowly moved along, fractures were opened in the rock above it, which in turn were filled with the invading magma. Eventually this molten mass cooled and solidified into tough crystalline diabase, often in wall-like forms, and at no great depth. It also baked the shales which it intruded into hard resistant rock along the contact. Meanwhile erosion was taking place on the earth's surface, as it does today, and eventually the softer materials were removed from above, and the masses of diabase were exposed to form hills and ridges. If they had solidified in a vertical, or nearly vertical position, these diabase rocks were called dikes. On the other hand, if their position was closer to horizontal, they have been called sills. The three riffles below Middletown are formed from two sills and one dike, in downstream order. Actually the two upper riffles are parts of one large sill, and the Middletown Rapids are formed from the baked shales as well as the diabase.

It is with the middle one of these riffles that this article is concerned, the Conewago Falls, opposite the York Haven dam and power plant. This series of riffles is roughly a half mile

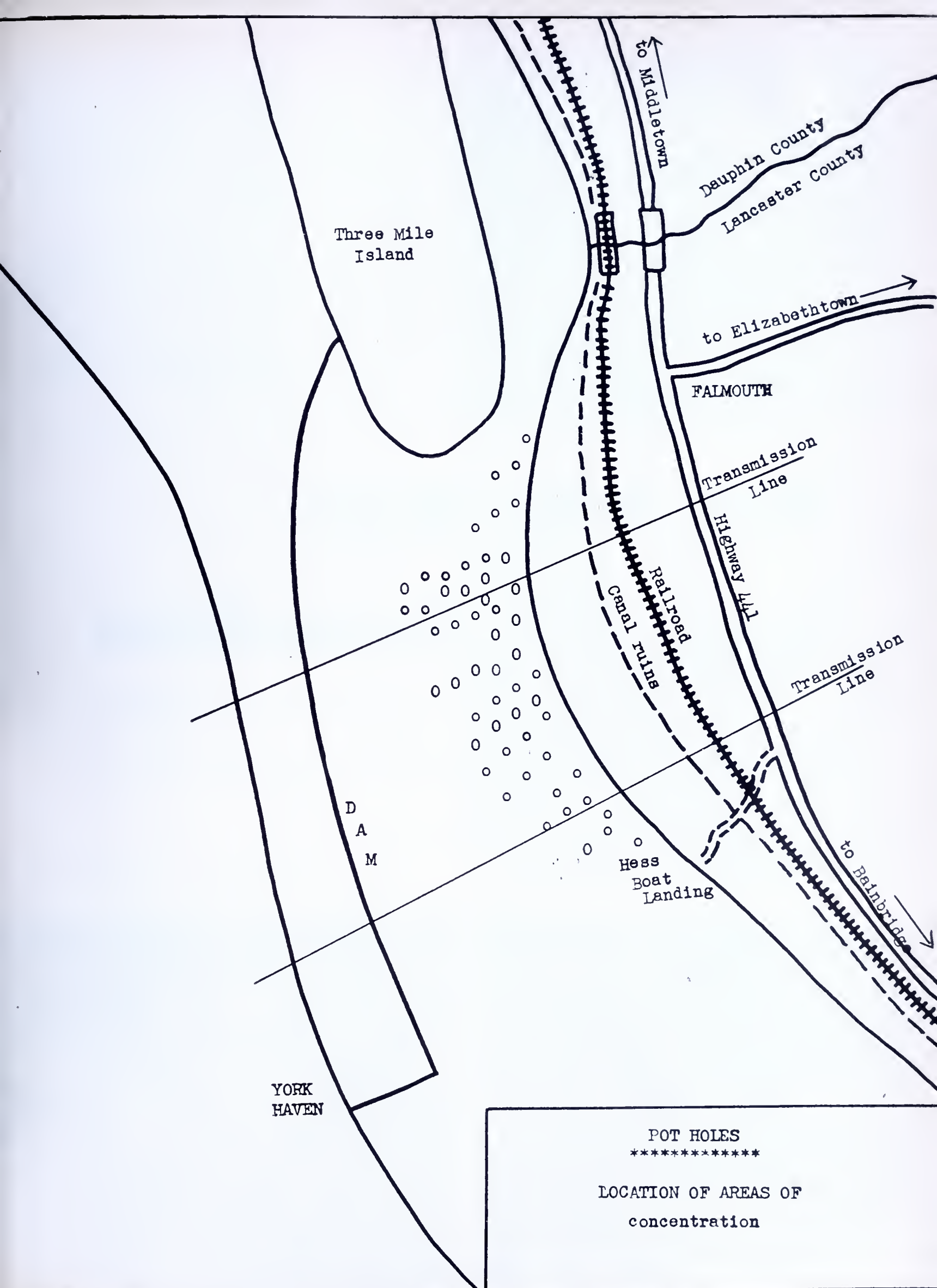
long and a half mile in width. Here the river drops twenty-three feet, and in high flow presents a rather nasty bit of white water to the boatman or canoeist. In low flow, however, it is possible to observe what has been described as "One of America's most extensive displays of a singular geologic phenomenon."* Where the diabase lies athwart the course of the Susquehanna, the whirling action of the river's water, aided by the sand, pebbles, and small boulders, which it carried along, has carved into the hard rock countless numbers of bowl-like holes varying in diameter from a few inches to over six feet. A number of large ones are well over five feet in depth. The largest is easily ten feet deep. Although the majority are

circular, some are elongated and lens-shaped. Lying at the bottom of many of the openings are the grinders that carved them. These grinders are composed of quite a variety of assorted types of hard rocks, most of which are distinctly foreign to this locality. The cavities which they carved are known technically as pot holes.

A pot hole presents a perfect example of one way in which the earth is continually undergoing modification through the action of natural forces, thus bearing out the contention, "Change and decay in all around I see." It all begins with a tiny scratch on a river-bed rock, which in time picks up a few grains of sand. These in turn are rotated around by swirling water, thus starting an operation that continues for millions of years. As the centuries pass, the crack will be widened from the abrasion of these

(Turn to page 25)

* Beck, H. S., Prolonged Drouth Uncovers Geologic Phenomenon, Monthly Bulletin, Dept. of Internal Affairs, Harrisburg, Pa., Jan. 1948.



Three Mile
Island

Dauphin County
Lancaster County

to Middletown

to Elizabethtown

FALMOUTH

Transmission
Line

Highway 441

Canal ruins
Railroad

Transmission
Line

D
A
M

Hess
Boat
Landing

to Bainbridge

YORK
HAVEN

POT HOLES

LOCATION OF AREAS OF
concentration

THE Erie Works of the General Electric Company practically sits on a tall bank overlooking the waters of Lake Erie—so it's natural that a lot of its employees are fishermen who need boats and motors to get them where the fish are biting. Toward the closing days of World War II, A. C. (Al) Morton, thought it would be a good idea to have a boathouse built into a section of lake bank which would give safe, convenient storage for the boats which ordinarily were piled on beaches and otherwise neglected while not in use.

There was the further annoyance of keeping motors in the trunk of the car, hooking and unhooking them to the boats each time, the transfer of

tackle boxes, gas cans, etc., from boat to car, and a number of other inconveniences attached to the method then in use. In 1946, Mr. Morton obtained permission from the company to use a tract of land alongside the mouth of Four Mile Creek for the purpose of erecting such a storage space.

So Morton and a group of companions formed the GE Fishing Club, sold stock in the non-profit corporation, and raised themselves by their own bootstraps into the business of providing boat storage, launching, and landing facilities for some 117 boat users. An addition currently being completed will add about 25 more storage lockers.

The club employs its own caretaker,

called the "club warden," who supervises operations and assists the members in getting their boats in and out of the water through a simple dolly and winch set up. An electric hoist puts boats into the upper lockers and steel rollers along the bottom of each compartment ease the operation of sliding 'em in.

The system works well and with dispatch as has been proven several times when sudden lake storms caused boats to "pile up" in the waiting line to use the dolly. When this occurs, the boats are merely removed from the dolly and it's sent down the ramp to get the next in line—storage being a problem deferred for the moment. In this way, about a boat a minute can

Erie Lakeshore

Launching

By **BILL WALSH**

Good view of boat lockers and construction. Locks accompany each locker, each boat owner has own key. Club "warden" has master key if angler, in feverish anxiety to go fishing, forgets his key.



Arrangement allows angler to keep fishing gear in one place, eliminates hauling rods from and to boat from car. Gas cans are removed from all lockers.



be removed from the water.

On busy days several hundred launchings and landings are not uncommon.

The storage compartments are covered against the weather and the club is able to provide year 'round storage at a cost which most folks in the area pay for only a few months of summer "in the water" storage.

It has solved the problem of rising and falling lake levels by placing itself above the water and reaching it by way of a concrete ramp. When the water is low, there is just a little more drop to reach it.

In fact, it's been so popular that there's a waiting line of folks who'd like to join the club and rent the lockers. It's even possible that to handle the crowd, the club will be forced to build "twin" facilities a few yards down the beach.

Top Photos—

Boat, out of nesting place, boys prepare to lift it on dolly to take it down ramp into fish-filled waters of Lake Erie.

On dolly, boat is ready to slip down ramp into water. A bar-type handle steers dolly, owner can steer and ride with his boat on the running board.

Lower Photo—

Down the ramp she goes. Boat house is placed high on bank, well above high water and threat of storms which make beach storage impossible here.

Lower Right—

Safely in water, angler looks forward to smooth sailing and good fishing. In these waters, club members catch perch, blue pike, walleyes and smallmouth bass.





some male anglers I have met

By BILL WOLF

WHEN the roll is called up yonder, all fishermen fortunately will not be divided arbitrarily into Goodies and Baddies like the characters in a western motion picture, but some will be put in the In-Betweens. I like to take a charitable view toward some of the fishermen I have met, and feel there must be a little bit of good

even in the worst of them. For instance, that fellow who cut *my* line instead of his own when we tangled over the side of a partyboat probably wasn't all bad. Perhaps he was kind to his mother before he put her out on the Poor Farm when she became too feeble to work. Maybe he loved his children until they became

big enough to snatch the nail-studded board from his hand when he spanked them. Possibly he even was fond of animals, refusing to whip horses and dogs because he felt a well-planted kick would do as well.

Over the years, a person who fishes meets some odd characters, and is, in turn, taken as an odd character by

PENNSYLVANIA ANGLER

those who meet him. Some of these chance acquaintances are goodies and improve with age, others are baddies, and then there are the in-betweens again. Somehow, though, the ones that stand out in the memory are mostly bad.

This is unfortunate because the average fisherman is a pretty decent sort, and about 90 per cent of them are gentlemen, a higher percentage than one finds in most walks of life. However, it is so easy to overlook them and remember only the exceptions to the rule. The exceptions like Stanislaus Jones. I am calling him Stanislaus Jones because that isn't his name, and it is inconceivable that anyone would be named Stanislaus Jones.

Like many Americans, he was of mixed ancestry, part of which I suspect was canine. The thing that made him obnoxious was that he was an Expert. Now, some anglers can be experts without being obnoxious, but Stanislaus considered himself a Capital E sort of Expert, and that kind rubs the fur the wrong way. I even remember when he became an Expert. It was after he had been fishing for all of several weeks. Prior to that, he didn't know a stream from a streamer, or a catfish from a cat. Then he took up fishing and learned everything in three weeks, thereby qualifying as an Expert. He knew all about flies from Alder to Zulu, he knew all about tackle, all about trout, all about bass, and looked with pity upon the rest of us who had been plodding along at angling for many years. In fact, he pitied us so much that he was willing to teach us fishing, sitting down and patiently talking to us hours at a time.

It seemed that we had been doing everything wrong, according to the Stanislaus Jones Theory and Methods of Angling. Much to Stanislaus' disgust, we even insisted upon using old-fashioned flies instead of the ones he invented. Like most persons who take up fly-tying, he tried creating new patterns; but, unlike most persons who soon realize fly pattern possibilities have been thoroughly explored, Stanislaus persisted. If we pointed out that his "new" Stanislaus Special looked suspiciously like the old red-and-white bucktail, he would become indignant and point out that his Special had a tail made of two fibres each from the feathers of red ibis, European partridge, roseate spoonbill, South American condor and bustard. Otherwise, it did look ex-

actly like a red-and-white, he admitted, but that tail made all the difference in the world. He was always "turning over" trout with it, or on one of his other creations. Not catching them, mind you, but turning them over. He was too good a sport to catch them and keep them, so he never even bothered hooking them. Just turned them over.

We soon discovered that we had the wrong kind of rods, reels, lines, boots, and even line dressing because we were too stupid to buy the kind Stanislaus bought. A faint, condescending smile would wreath his lips whenever, out of the kindness of his heart, he took time to show the deficiencies of our equipment and the superiority of his own. Finally, after about four weeks of fishing experience, the Expert took the attitude that he was doing us a favor by allowing us to go along with him and observe the master at work. That was the end. Somehow, the expert doesn't go with us any more. Or we don't go with the Expert, whichever way it should be put.

I have met other anglers who simply talked too much. All fishermen like to talk when they get together, but it usually takes the form of a conversation. The ones I mean conduct monologues in which they do all the talking while their bored audience has to listen. They talk *at* you. It makes no difference to them whether their audience listens or not—they just continue with their verbal diarrhea. I saw one remarkable instance in which such a character talked by the hour to a whole roomful of people who hadn't the slightest interest in fishing. They had gathered on New Year's Day to console each other on the megrims that followed New Year's Eve, and I was the only one present other than the talker who fished. So he told them all about his trips of the past year, explained to them how he caught fish, showed them photos which he carried (just by chance, of course) in his pocket of dead fish he had caught, and generally, he convinced them there are worse things than hangovers.

Then there are Boors. A plain Boor is one who walks up to where you are fishing and casts in right beside you although there are hundreds of yards of stream available. A Super-Boor is one who not only hogs your fishing space, but, when he is tired of the spot, wades right out into the pool and crosses the stream there, ruining any possible fishing for you. There are

lesser Boors who literally run to get ahead of you so they can fish first on a promising stretch of water. I once met a Boor who watched me catch a trout, and then stepped into the very spot I had occupied when I bent to take the fish from the net, and proceeded to fish from it.

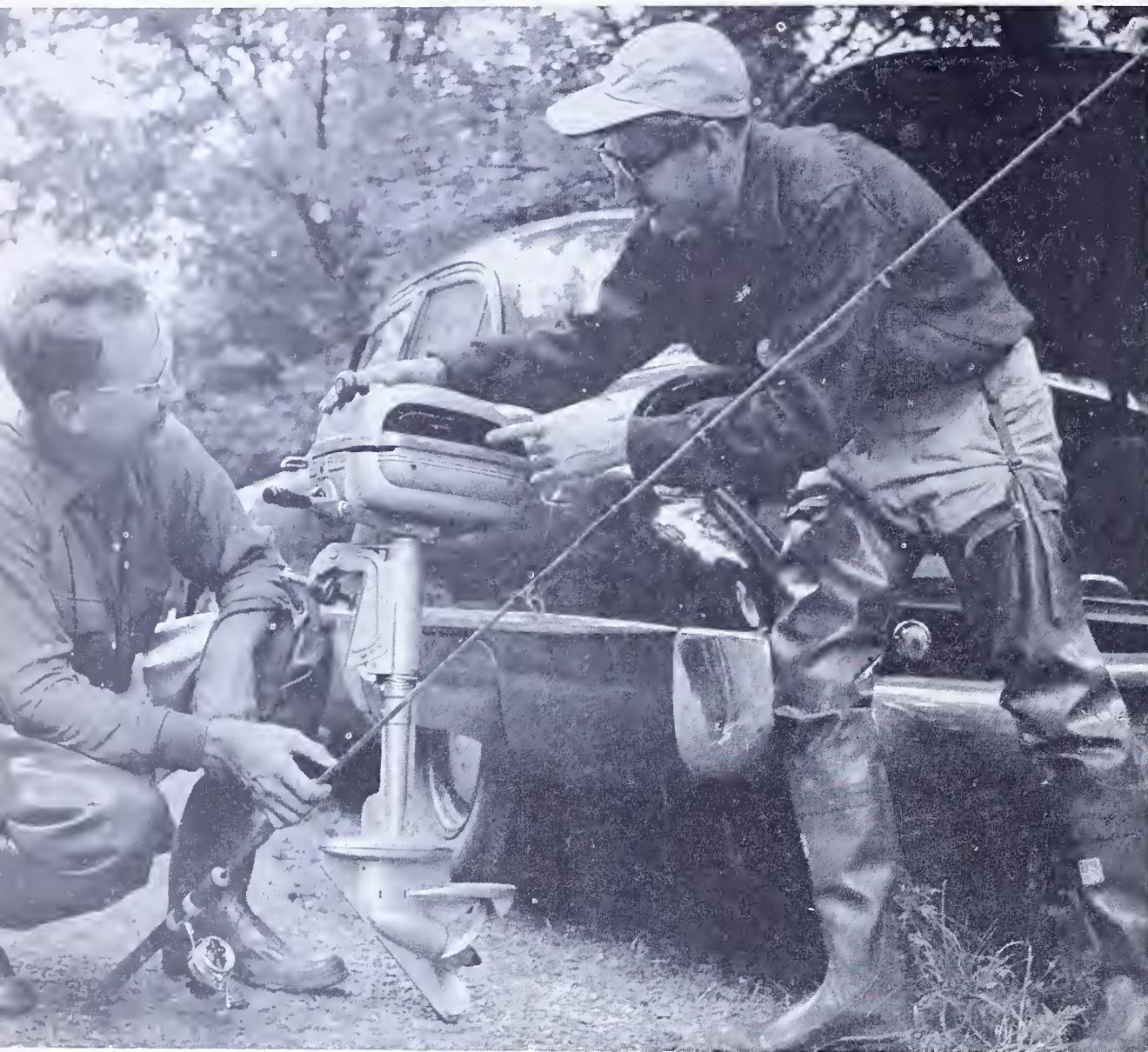
I think one of the worst types one can meet, however, is the fellow who starts out full of enthusiasm, and then becomes grumpy and lousy company if he fails to catch fish right away on a trip. He growls about the weather, about the roads, about the streams, and you get the feeling that he holds you responsible although the trip might have been his idea in the first place. If the trip lasts more than one day it can be more than misery.

There's another type who catches more fish than you do, then boasts about it. I don't mean simple kidding, which is almost normal among fishermen, but the nasty kind of razzing which goes on for hours. Like most anglers, I like to catch fish; but if I don't I'm not too unhappy about it until one of these characters starts in on me. I have actually taken such a person fishing to one of my favorite spots, showed him what I thought was the best water, and spent most of my time making sure he had a good time—only to have him spend the evening making unfunny remarks about how he "wiped my eye," and did I want him to give me some lessons in fishing my favorite stream?

He is on a par with the character who is secretive about his fishing. Likes to sneak away to some place

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When wading won't do business, off with the boots, get out the kicker and try trolling.

TROLLING

with spinning

By RAY OVINGTON

tackle

WHEN most people consider spinning, they automatically think in terms of casting light lures long distances with great accuracy. Spinning tackle, however, has also won its spurs as an efficient rig for trolling for everything from tuna, marlin and sailfish to trout, bass and panfish. The multiple advantages of the tackle make it an extremely versatile all-round outfit.

There are no line tangles or backlashes from trolling with spinning tackle . . . the reel spool will not over spin because it is stationary. The line pulls off by single coils and is returned in a cross-wind by a revolving bale. Unlike the conventional bait casting reel with the revolving spool and single adjusted click drag, it has a built in drag which can be pre-set to the equitable pound test required.

If you use a light line for a possible big fish, the drag is set light and upon strike, the limber tip of the rod and the light drag combine to set the hook without undue danger of line breakage. The rod is then set into play. If the fish is big you either let it run as the drag allows or you tighten up on the drag to suit. The spool carries a tremendous capacity of this light line . . . another insurance against a lost fish. Even the small size fresh water reels have more than ample line capacity of thin monofilament or braided line thereby making the rig lighter to carry and use.

When fishing for species that will run you into the rocks, such as the striped bass, for instance, a heavier line is required with the usual wire leader ahead of it. In shallow water trolling it is often advisable to run a six foot section of heavy monofilament

reel becomes snagged on some object in the boat and the whole rig either bounced around, sometimes overboard, or, in the case of a fast trolling speed or a big fish, the line snapped. Bait casters also know the story of the skinned knuckles as they frantically try to hold the revolving handle. With the anti-reverse, the handle remains fast against pull but can be freely reeled to take in line, making it virtually fool-proof.

The third major advantage of spinning tackle for trolling is the feature of interchangeable spools. If you are fishing one weight of line and desire for some reason to switch to another, it is a simple matter to make the quick change. The conventional bait caster, or salt water boat rod man, has to switch to another reel. Therefore, one spinning reel with extra spools loaded with a variety of weights will suffice for almost any situation that may come up. Keep several spools in the tackle box for reserve.

There is no necessity for using a heavy line for trolling short behind the boat for trout or panfish. Use the line you ordinarily use in casting . . . probably a four or six pound test. If you have been in the habit of casting the spin-size midget plugs for bass and pickerel, say, six pound, is ample for trolling. In surf casting, where you use a ten pound or twelve pound test, this is ample for trolling along the beach or in the rocks provided a terminal heavy section of leader, plus the wire is used. There is no advantage of trolling with a line that is too light. If the fish takes out a long line or fights from a long distance, the light monofilament, while it has a great stretch, will be lugging its own weight

a school that disagrees wholeheartedly with this. It is simply a matter of choice. Those who prefer the braided have, for the most part, been fishermen before taking up spinning and have as a consequence used braided bait casting and salt water lines, cuttyhunks and nylons. It is true that test for test, greater line capacity is to be had with monofilament, although one manufacturer has produced a braided line of greater strength for size and actually smaller diameter than monofilament of the same pound test! The big point to remember is to set the drag to the proper test for the amount of line that is out, the fishing conditions and the general size of the fish. All this must be in relation to the strength and flexibility of the rod being employed. The whole rig must balance. In spinning, the reel drag makes up a great amount of that flexibility.

In salt water fishing, where the angler has been used to the star drag and the free spool, these points are readily apparent and have become second nature. The only advantages of spinning reels over the star drag boat or surf reel are the no-backlash feature and the even cross spooling of the line, eliminating the need for a complicated level-wind device or finger guiding to distribute it.

When it comes to the choice of a reel and the selection of the proper size for the general type of fishing you will be using it for, you have today a wide variety . . . any of them are designed for trolling, so the casting you will do should determine the selection. They come in three sizes in most makes. The small, which is the standard equipment for fresh water

leader between the wire and the regular line to further insure against line break due to possible scuffing against the rocks or snags.

Another great advantage of spinning gear for trolling is the anti-reverse device found on most good spinning reels. This enables you to lay the rod down or let it rest in a rod holder while fishing. When the fish hits or the lure becomes snagged, the reel handle does not revolve. The line spools off directly from the drag click. The user of the conventional bait casting reel is well used to losing fish because often the handle of the

against the weight of the water. Too light a line will break even without great surges of power from the fish. I make it a practice to troll with a line testing two pounds heavier than that with which I have been casting. From a four, for light spin casting . . . use a six for trolling. For light surf casting a ten pound . . . use a twelve for trolling.

Monofilament or braided? If I must make a choice, I prefer the braided for trolling, though many experts I know, say that the monofilament will stand up better against snags than the braided in the same weight. There is

casting, trolling and general purpose work will hold ample line of light weight, and cast well with monofilament line up to eight pounds.

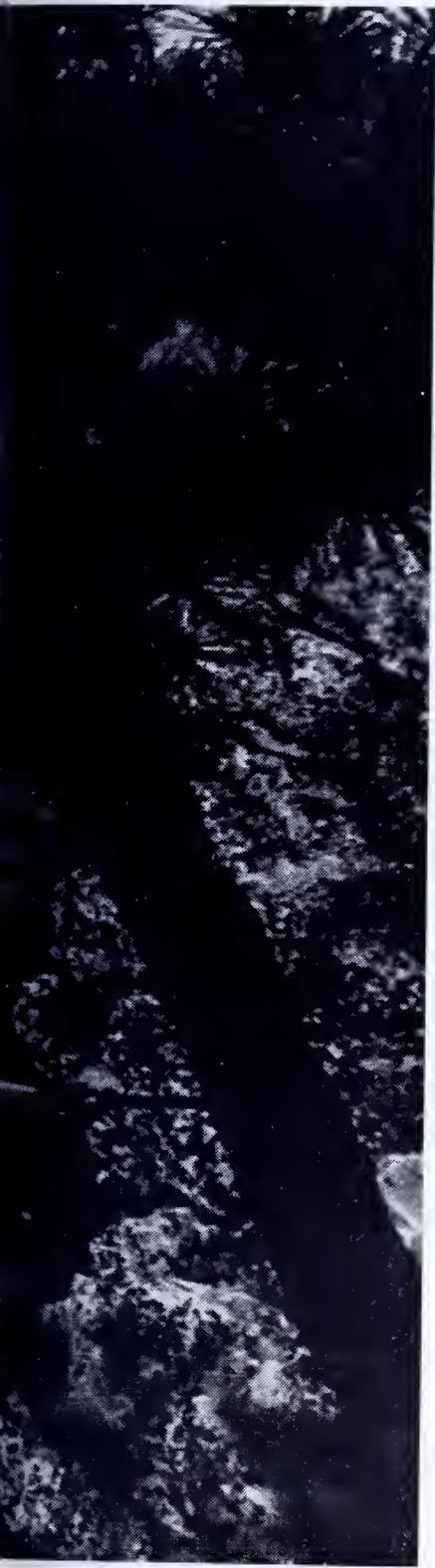
The middle size weighs a scant few ounces more. It holds almost double the amount of line. Here is a real work horse and you will find that due to the larger diameter of the spool, heavier monofilament up to twelve pound test can be used without any danger of loops or undue unfolding of the line. This size is perfect for deep trolling in the lakes and for salt water fishing for anything that can be held

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Beautiful Laurel Lake at the Foot
of Piney Mountain, Pine Grove
Furnace, Cumberland County and
Favorite of Trout Fishermen.

—Photo by Kenneth Ehrhart



Buttermilk Falls on
Marshalls Creek, Monroe Co



—Photo by Lamar Mun

stream smallmouth love spinners



By JOHN LIENHARD

The smallmouth bass is one of our most sought after fishes in Pennsylvania waters. Their palatableness is one reason. But their gameness commands the respect of all anglers, beginner and veteran alike. One of the surest ways to connect with a scrappy smallmouth is to attach some sort of a spinner or spinning blade with appendage to the terminal end of your leader.

Spinners are potent lures. A commonly accepted reason is that they represent a minnow. I don't know. But their popularity over the years as producing lures is ample proof these fish love the flash and glitter of a revolving blade.

Spinner blades are of many styles and nearly all are commonly used. Three well-known and deservedly popular blades are (1) the Indiana or standard (2) the Willow Leaf or narrow blade and (3) the almost circular Colorado or Idaho blade. Their main differences being the angle of flare from the wire shaft when revolving. Narrow blades hug the shaft. The Indiana or standard (pear-shaped) blade flares about forty-five degrees, and the nearly round Colorado and Idaho at approximately ninety degrees

from the shaft. For this reason widely flaring blades (especially in the larger sizes) are difficult to pick-up and can snap a fly rod tip.

Quite often anglers select double blades of small size rather than one large blade. Two small blades will not overtax the tip of the average fly rod. Whereas, a large single would, and if too large cannot be properly cast even with a heavy rod. Many anglers believe small blades are just as effective anyhow. Whether the single or double will provoke the most strikes, to my knowledge, has never been determined. Under average conditions both are successful and it's almost a toss-up between the two styles.

This brings to mind the experiences of an old bass fisherman, a chance acquaintance I met one day along a good smallmouth creek. I was sitting at a concrete bridge abutment bait fishing. He did not see me as he approached on the opposite bank. A short distance below me he stepped to the water's edge and pulled up a stringer. It was then I noticed the nice bass in his hand which he strung up with care. I'll confess my selfish motive. I lost no time crossing the stream to find out how and on what he had

caught them. After the usual greetings he showed me. It was a nine foot telescopic steel rod, and mounted above the grip a large single action fly reel. He was using a bait casting line with a rather heavy leader of three or four foot length. The lure was a spinner with a red and white trimmed bucktail. But the size of the spinner blade—a number three and one-half (1 by $\frac{3}{4}$ inch) was surely too large for regulation fly casting. He didn't cast, either. But swung the lure pendulum fashion. Certainly unorthodox, but he had made this method pay off in bass for years. And of particular interest to me, he said that style and size nickel spinner was his favorite. He ordered them by the half-dozen from the manufacturer.

Two other old standbys for general useage are the June Bug and the propeller styles. Both are free running and start quickly and easily on retrieve. The June Bug is especially well-known and widely used in the larger sizes with bait casting rods, the small are ideal for fly rod use. Of the propeller style the luminous tandem blades have their concave sides covered with a material that gathers sunlight. These create a glow in the watery depths believed by some an aid

in attracting fish. Similar blades in brass are obtainable, also.

There is one radical difference in the Colorado spinner when compared with the other styles previously mentioned. It is mounted on swivels. For this reason they sometimes do not function properly for fishing flies, bucktails or pork strip. The pull of the trailing fly may cause the swivels to bind and prevent the blade turning. Therefore, blades on wire shafts are the leading choice for this fishing.

The finish of blades can be an important factor, at times and under varying conditions, in catching smallmouth. Nickel, gold and brass, in either plain or hammered finish, are to choose from. The plain nickel leads the field. A dull brass is preferred by some for clear water. However, polished brass will reflect almost as much light as nickel. Unless kept polished brass blades grow dull with age and some anglers use them to advantage. Select a cleaned and polished blade for use in dark and roily water, or where the stream is densely shaded, and the tarnished for clear and open water. Hammered blades are often used for maximum light reflection, although many successful anglers have never had one in their tackle kit. Gold with its dull, flat sheen, and not as flashy as either polished brass or bright nickel, does reflect light well and can be seen some distance in water. I have never seen any instance where it has any special merit. When used under like conditions throughout the season the nickel and brass will hold their own.

The spinner as a smallmouth attractor is further proven by the many often used lures on the market that depend largely on the flash of a turning blade. The fly rod Weasel, Pemco streamer, small fluted blades used extensively for trolling, to name a few, all attest to luring qualities of this type artificial.

Let me caution the reader not to confuse spinners with the many spoons which dive, dart, and wiggle, but do not actually spin. These spoons are sometimes erroneously called spinners. Although proven lures, are not for this discussion.

Perhaps one of the reasons for the spinning blades all-season effectiveness is the fact the blade is always in motion. It may wobble, gyrate, or just swing to and fro while sinking because of slack line. The second it hits the water it is doing something. The faster the current, the more pronounced its action. The strong currents of deep

riffles, glides and the heads and tails of pools make a potent decoy of the spinner with little effort on the part of the angler. Occasionally strikes are coming on a slack line, that instant after the lure is cast and before the retrieve is started. But the majority will come after the spinner is underway. It is generally conceded in fishing circles that the best bet to catch fish is the lure that is always working. And good spinners do.

The spinner's adaptability to the currents and depths of water encountered in stream fishing for smallmouth is unsurpassed by any other lure. Deep holes, fast rocky riffles, rock ledges, and under cut banks and drifts all present the means of filling the skillet with fillets.

More care on the anglers part is required when working shallow water. It has been my observation that bass in the shallows are more wary and more difficult to fool. Quite often deep fishing will be productive, but at the same time impossible to provoke a strike in shallow water no matter how diligent and careful the angler may be. Stream smallmouth like to stay hidden, seldom become brazen enough to strike in open view of the angler. And then only to dart out and back to cover. There are exceptions of course. I have had small bass brush my booted knee and take the lure as I was lifting the leader with my hand. Larger and wiser bass aren't this foolish.

The manner of gathering line on the retrieve is a matter for the individual. The important point is to get the desired action out of the spinner. The steady retrieve is most often used. If this fails, the tumbling trick will at times awaken them. Retrieve a foot or so and give slack by dipping the rod tip. Repeat until the spinner is back for the pickup. Smallmouth often will go only so far to meet the lure. This is especially true in pot-hole fishing in the smaller stream. It is the anglers job to keep it down and near enough to interest them.

Water coloration is constantly changing in streams. This is a most important factor in determining effective fishing at any given time. All fishes as well as smallmouth hide-out and seem reluctant to feed during the mid-summer low water period, it appears likely that any period of clear water as well as varying water temperature, would have an effect on fishing. This I have noticed many times but one of the most enlightening experiences pertaining to this was driven

home to me one fine fall day some years ago.

I spent the afternoon fishing a clean, spring-fed creek near my home. The water was a milky haze from a rain a few days before. At a lazy bend in a pasture field the farmer's cattle had a well-worn crossing. This was shallow with scattered rocks, some protruding above the water's surface, and pocked with cow tracks. I caught three nice smallmouth here. And as I remember it, I took several fourteen and fifteen inch bass that day. I kept the three largest and returned the others unharmed back to the water. Several days later I returned for another try. This time it was a different story. The water had cleared considerably and every stone and cow track was visible. And I have never since taken a bass from this spot. Never finding it in the right condition, despite the fact that time has made little change in the stream bed at this particular place.

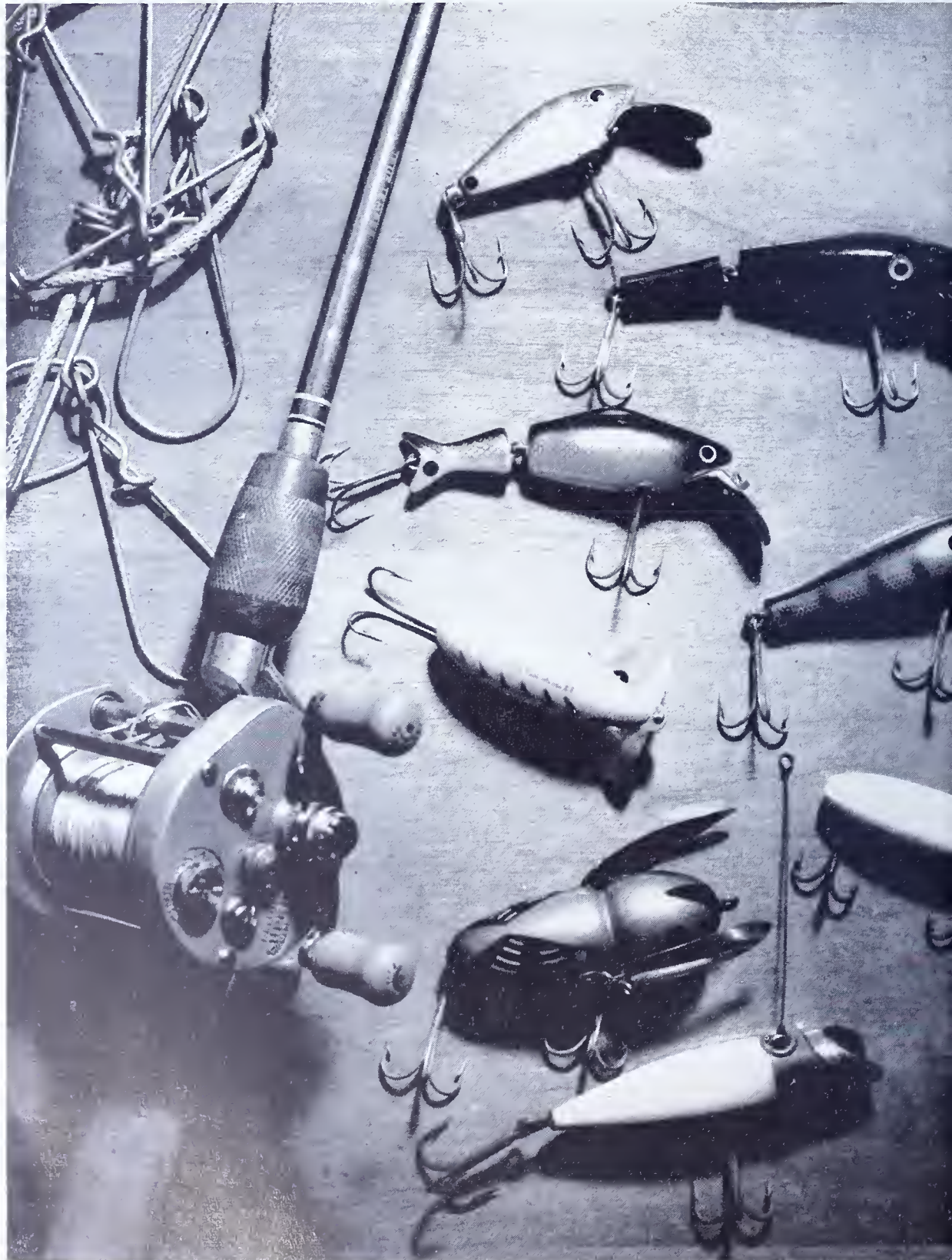
Of interest and importance and always a matter for study, and sometimes argument, is the kind and pattern of fly to be used with the spinner. Bucktails, feather and hair streamers, hackle flies, the old and now less popular upright wing flies all come in for their share of use. Of the latter, the upright wing is sometimes clipped off for spinner use. Sizes of these appendages vary from eight to 1/0, but are usually selected with the size of spinner in mind. Both bright and somber flies are killing patterns. I have a decided liking for natural bucktail, gray and fox squirrel, and yellow. The yellow for mid-summer use when the water is low and clear. Another favorite of mine is the gaudy red, blue and yellow parrot feather streamer. A bright green hackle with red and yellow tail is good. There are few flies with green hackle and I have always wondered why. It has been a very effective fly with spinner in my locality. Number one for fish caught in my book.

The pork strip for spinner use, with or without fly should not be overlooked. It has been the means of catching fish after fruitless casting with spinner and fly. It is without a doubt more effective with spinner and fly than with spinner alone. The smallmouth as a rule prefers a hearty meal. The spinner, fly and pork strip combination fills the bill nicely. Although inclined to be bulky for casting, especially with large flies and medium sized blades, it is worth every effort.

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the **BIGGER** the plug

By THAD BUKOWSKI



MANY fishermen of late have gone sentimentally overboard for the small sized plug. Like them, I too have recently accepted the idea of the supremacy of the small sized artificial over the large one, and have weighed down my tackle box with a goodly number of dopeys, runts, and such other tidbits supposed to be the ultimate in tantalizing fare to the big wheel of our local lakes and streams—Mr. Bass.

Try as I might, however, I have never been able to get the smallmouth to soundly bust into our wooden make-shifts, though lustrous, glittering, and glamorous they be. And though the smallmouth have fought more friskily for me, jumped more wildly on the end of straining tackle, come to net more reluctantly after giving all of their worth in battle and more, even out-Henshalling Henshall's famous statement about their supreme fighting characteristics, I for one have had to take most of them on baited hook using a lively crawdad, crawler, hellgrammite, or even minnow. But definitely, they seem to be quite avid underwater feeders ruminating among sandy shoals or rocky bottoms. Some fishing folk like to say they hit the little plugs at night. About that I wouldn't be too sure as I'm a fervent admirer of a good four poster when sleeping's to be done.

While the desires of the smallmouth have been rather dormant where plugs are concerned, the tastes of their counterpart and heavier brothers in water, the largemouth, have been directly opposite. The latter have whacked most anything I've thrown in their direction when a'plugging in past years, and at one time or another have hit almost any of the plugs I own—except the midgets! Like the proverbial he-man who would rather eat a big steak than a little tidbit, they have turned up their respective noses at anything that has not been sizeable enough to be classified as a good mouthful. Here and now, therefore, I would like to take issue by saying that when we're *plugging* after bigmouth, the bigger the plug, within reason, the better the bait. I could run through my tackle box and name ten medium to large sized artificials for every small one I've taken largemouth with, and that seems to be saying something. Look to your tackle box, think back a little, and you, too, may find the same situation unknowingly has existed for you. I believe many of us have too readily given up on the big plug and ought

to go back to it, at least occasionally, to get at the whoppers still lurking around, patiently awaiting a sizeable hunk of wood to pass their pugnacious noses.

Memory is quick to fade but I can still distinctly remember the first time I ever had a strike on a plug. I was using an umbrella stave for the end section of a rod that probably never cost more than four bits. I don't know where I got the rest—somebody must have given me that, too, for it's been years ago, when I wasn't much past the knee pants stage. A young bucko, I was plying a back bay of a typical weedy, full-of-fish, Pennsylvania lake for panfish, with my pants rolled above my knees and my toes wiggling the muck in an awfully miry bottom, having myself a whale of a time. Came a big, husky, brother fisherman. Plugs, boots and all that paraphernalia that gives me such a headache now when I start assembling it to go fishing. In "them days" it was much easier: all I owned was that crochety pole.

"Hi, kid," said my new found friend nonchalantly, as he laughingly looked me over. "How's fishin'?"

"Purty good," I replied flashing a toothsome burnt-faced grin, showing him my hefty stringer of sunfish.

"Any bass hitting?" he asked, in condescending attitude. He started to thread some leader through an elegant agate eye of a still more elegant outfit and snapped on a plug.

"Well," I said, "None ain't hit mine yet. But there'll be a few big ones'll show themselves up in the weeds." I indicated the far side of the bay and a small stump.

The fisherman threw out his plug. A way out. Once, twice, three times, ten times, twenty, fifty, a hundred, five hundred. The bass ignored his offer of the first plug, the second, and the rest. It must have been a mite discouraging.

Towards late evening, a lush grand-daddy awoke from his afternoon slumber. Like a cranky, cantankerous old man chasing kids away from his property, he began splattering and spraying the weed bed after fry. My kid blood sizzled to a wishful boil. The fellow next to me licked his lips. Every time that bass swished through the weeds around the little stump I had previously indicated far back towards the cattails and made a whopping flop after a sunfish or frog he'd just lick his dry lips all the more and

whale his plug a little farther. Even the best of them can send it only so far, though, so after unravelling a few tremendous birds nests, he turned to me, sadly, but with sincerity, and asked.

"Kid, can you get at that bass?"

"Yup," I said, "I think so. You got to go way back into the swamp and hit a trail on the other side. Then wade that muck in them cattails."

"Try one of my plugs then and get that whopper!"

I felt proud of that man, and ashamed of thinking bad things of a feller fisherman who could be that benevolent and free with his tackle. I took him up on his offer.

"He's a big one," the man said to me, "so let's give him something big enough to wallop." He withdrew a bass bait from his tackle box the size of a policeman's billy club. It was the usual red and white but a wobbler monstrosity of muskie size, with three trebles hanging from it that bent my stave rod like a four ounce fly flicker.

I struggled with the weighty artificial. Shuffling cautiously in my bare feet I headed back towards the woods where crows cawed with cries of apprehension as I entered. I waded through the mire of the cattails on the other shore trying to get at grandpappy. Still later I neared the edge of the cattails where they ended in a green cover of weeded water. Almost up to my belly in slimy mire, I edged forward with my rolled up pants touching water and finally got into position to make a try.

I swung the crazy rod behind me and let fly the plug. It clipped the edge of a cattail and my twine wound into a mass of twists and knots. When the plug reached the peak of its arc it flew back at me with a whump-like noise. I looked at the reel with a sickly feeling, but I quickly got at the backlash. With feverish effort, it worked free. Grand-daddy was again walloping the top water with his tail, chasing food. I finally wound the creaky reel and tried again.

Carefully now, I eased the plug behind me, saw I had room and once more reared the rickety pole towards the lake. The elephantine plug flew over the water like a buzz bomb, heading towards the rest place of cantankerous Mr. Bigmouth with an uninterrupted glide. A grin spread over my face as I knew I had made it. Red and White colors flashed in

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State Sportsmen Convene at Harrisburg

The annual fall convention of the Pennsylvania Federation of Sportsmen's Clubs was held in the City of Harrisburg, September 18 and 19, 1953.

The convention considered numerous actions designed by the respective state divisions to improve and expand the outdoor recreational opportunities in the Commonwealth. The PENNSYLVANIA ANGLER herewith publishes a report of the convention's findings embracing the following resolutions which were adopted by the conclave:

8. N. E. WHEREAS: Where trout are stocked in open season and the streams posted for a five day period, it has been the practice of the Fish Commission to stock these streams individually and when the five day restriction is lifted causes a great deal of concentration of fishermen to that particular stream.

THEREFORE BE IT RESOLVED: That the Fish Commission make every possible effort to stock all the streams in a particular area simultaneously so as not to create great concentration on one particular stream by fishermen.

Motion made at The Palmerton Rod & Gun Club meeting by George Fogelman and seconded by Charles Donchez, that this program be put into effect and carried out.

9. S. C. WHEREAS: It has been established beyond any reasonable doubt that all dams halt the free migration of fish and

WHEREAS: Migration of certain species is desirable from an economic as well as a sportsmen's viewpoint and

WHEREAS: The only present solution of this problem is efficient fishway, or elevators properly installed and maintained and

WHEREAS: The logical sequence in which this program should progress is from Tidewater upstream.

THEREFORE BE IT RESOLVED: That the Pennsylvania Fish Commission petition the State of Maryland and/or the appropriate Federal Agency to install and maintain an efficient fishway on all dams of the Susquehanna River.

BE IT FURTHER RESOLVED: The Pennsylvania Fish Commission offer to cooperate in the planning and if necessary pay a fair share of the costs of construction and maintenance of said fishway.

10. S. E. WHEREAS: The Commonwealth of Pennsylvania by the Act of June 4, 1945, P. L. 1383, recognized the necessity in the interests of the public welfare of eliminating the continuous pollution of the Schuylkill River and of cleansing the river of the accumulation of silt and other industrial wastes, and

WHEREAS: The federal government agreed to share in the project of restoring the Schuylkill River as a natural resource of the Commonwealth by assuming the responsibility of cleaning and dredging that portion of the Schuylkill below Norristown while the Commonwealth assumed the responsibility for the portions of the river above Norristown, and

WHEREAS: The Commonwealth has fulfilled its obligation under the aforesaid Act of Assembly by cleansing and removing the accumulation of industrial wastes from the upper Schuylkill, thereby restoring the said river as a supply of pure water and a natural resource, and

WHEREAS: The federal government is now engaged in the process of cleansing and dredging the lower Schuylkill below Norristown so that the entire river will be restored to the citizens of the Commonwealth as a source of pure water and a valuable natural resource, and

WHEREAS: By the expenditure of a comparatively small sum of money, it would be possible to erect artificial structures such as fish ladders at or near Fairmount Dam in the Lower Schuylkill to make it possible for migratory fish to ascend the waters above the dam, thereby enhancing the value of the natural resource as well as providing for and extending the recreational facilities in the area through which the river flows;

NOW THEREFORE BE IT RESOLVED: That this organization memorialize the appropriate public authorities and agencies of both the Commonwealth of Pennsylvania and the federal government for the purpose of inducing the said authorities to add to the value of the project now being undertaken of cleansing the river by adding artificial structures at or near Fairmount Dam to enable migratory fish to ascend the river above the dam, thereby providing additional recre-

ational facilities and thus increasing the value of the river as a natural resource.

11. (REDRAFTED) S. C. WHEREAS: There is now no specific method of reporting on action taken by State Federation officials on all resolutions passed at State Conventions.

THEREFORE BE IT RESOLVED: That each committee of the Federation be charged with the responsibility of seeing the resolutions of the Federation are acted upon by the appropriate Commission and shall file with the Secretary a report of the action taken. Thereupon the secretary shall promptly send a copy of such reports to the Directors and Secretaries of the Division and Counties.

12. The Board of Directors recommend the addition of a committee to be known as the Policy Committee to coordinate the work between the Game and Fish Commissions and the Pennsylvania Federation of Sportsmen's Clubs; this committee to consist of five (5) members and be appointed by the President.

15. N. E. RESOLVED, That the Pennsylvania Federation of Sportsmen's Clubs reiterate its previous resolutions commending the Department of Public Instruction for what it has accomplished under the present legislative setup on the teaching of conservation in the public schools of the Commonwealth and urge that the Department continue and expand its efforts on such teaching;

FURTHER RESOLVED, That this Federation support any legislation that may be deemed necessary to further and increase teaching of conservation in our schools.

16. C. THEREFORE BE IT RESOLVED: That the names of all persons convicted of violating fish and game laws be published in the *Game News* and *THE ANGLER*.

17. S. E. THEREFORE BE IT RESOLVED: That the State Federation appoint a committee, not to exceed three, to cooperate with the New Jersey Federation to follow through in the execution of the attached suggestions to improve reciprocal hunting and fishing on the Delaware River.

(A.) Program for improvement of reciprocal fishing rights on the Dela-

ware River between New Jersey and Pennsylvania.

(a.) Administrative agreements, possible to be arranged through a meeting between the Conservation officials of New Jersey and Pennsylvania—WITHOUT ANY CHANGE IN THE LAW.

(1.) That the license of either state be honored on the Delaware River and permit its holder to fish from a boat anywhere in the River. Further, that persons be permitted to start or end their trip in either state, transport fish, park the car, take boats, etc., but that the license of the particular state be required for anyone fishing in the Delaware River from shore.

(2.) Since New Jersey does not require the person rowing a fisherman to have a license, it is suggested that Pennsylvania adopt this same provision for the Delaware River.

(3.) Furthermore, the penalties for violations should be uniform between the two states.

(b.) Legislative program, to be effected in concurrent legislation to be enacted by the two states for the Delaware River only.

(B.) Two alternates have been suggested for improving the confusion of hunting migratory waterfowl as it now exists on the Delaware River.

(a.) The Delaware river and 100 yards inland be included in the New Jersey season and that the license of either State be honored on the river.

(b.) In case the seasons of New Jersey and Pennsylvania are different then (1) the channel as marked by the buoys must be the boundary line between the State from Trenton Falls south; and (2) the rivers edge is the boundary line from Trenton Falls north to the New York State line.

BE IT FURTHER RESOLVED: That similar agreements be entered into (a) between New York and Penn-

John M. Phillips,

“Grand Old Man of Conservation”

Takes Last Long Trail

February 15, 1861-September 8, 1953

The tribute to the Honorable John Mac-Farlane Phillips by Seth L. Myers, President, Pennsylvania Outdoor Writers Association, in the October issue of the *Pennsylvania Game News* is such a fitting monument to a great conservationist THE PENNSYLVANIA ANGLER cannot hope to duplicate nor approach.

We therefore urge all our readers to secure a copy of the *Game News* and carefully scan this epitaph to one of the nation's most capable, “down-to-earth” outdoor conservation disciples of all time, part of which is quoted below.

“For his fighting courage the whole army of conservationists salutes him in death as they did in life. For this calibre of man, his beloved city of Pittsburgh lowered the colors to half-mast from the time of his death until he was laid to rest . . . To such an

sylvania; and (b) other bordering States.

Following the official business before the convention, the election of officers for the year 1954 was conducted, with Joseph H. Barkley of Punxsutawney being reelected as president; first vice-president, Raymond H. Armstrong of Guys Mills; second vice-president, Steve Emanuel of Wilkes-Barre; secretary, Charles H. Nehf of Allentown; and treasurer, Glenn C. Dodds of Smith Ferry, Pennsylvania.

American it was only fitting that the continuous flow of friends from far and near came to pay homage. It was for this great service to his fellow-men and the future Americans, that an avalanche of telegrams and messages came from the far corners of the continent. There could be no more complete tribute paid any man.

Much has been written and many things have been said about John M. Phillips and during his later years, he has been fondly referred to as the “Grand Old Man of Conservation” by all outdoors people who knew him.

. . . Much more will be written about this great American while conservationists will continue for many years, to refer back to the seeds which he planted. They will find his tracks in the sands of conservation history in Pennsylvania and on the continent. Future generations will realize that had it not been for this far-sighted American and a handful of fighting helpers many of the outdoor things which will be theirs to enjoy, would have been lost to them long before they came into their natural heritage.

. . . It should be said that in his entire life-time, he asked for no credit or praise, let alone remuneration, for the things he did. In analyzing his papers and letters which are dated back to the early nineties, a very plain realization has developed in my mind. It is vividly written through those thousands of papers, that a definite trend to the reverse has been moulded in the thinking of the whole American people. It appears to me that this man, with a few helpers, changed the people's thinking of the old days when they believed that the natural resources were limitless, to that of concern over the waste of their heritage.

. . . It has always seemed to me that his work for conservation was being watched by the Great Creator and that the sun was directed to smile down upon the scene. Perhaps Mr. Phillips may have thought the same for I've heard him express his thanks for the beautiful weather . . . he was an appreciative man!”

—Seth L. Myers
in *Pennsylvania Game News*

N. J. SEASON	PA. SEASON	PROPOSED SEASON
TROUT		
4-15 7-31	4-15 7-31	4-15 to 9-30
Limit—20	Limit—20	Limit 8
Size 6"	Size 6"	
PICKEREL—PIKE		
WALLEYES		
6-15 to 12-1	6-15 to 12-1	May 20—Nov. 30
Limit—10 of each	Limit—10 of each	Limit—10 combined
Size 12"	Size 12"	Size—Pickerel 15"
LARGE AND SMALL		Walleyes 15"
MOUTH BASS		
6-15 to 11-30	6-15 to 12-1	6-15 to 11-30
Limit—10 in all	Limit—10 in all	Limit—10 in all
Size—9"	Size—9"	Size—9"

LAKE

WALLENPAUPACK

(From page 3)

counter fish weighing as much as ten pounds and more. Trolling proves to be the popular method in this lake, as elsewhere, for these gamefish. With a large dew worm or night crawler trailing in the rear of an Indian-Joe, June-bug or Susquehanna spinner and trolled on a weighted line, fishermen can enjoy some exceptionally good walleye fishing.

In the coves and bays along the rocky and wooded shoreline are large-mouth bass just waiting for surface lures to be cast near them. And there are perch, catfish, sunnies and other panfish along the shoreline for the children as well as grownups too. The lake is a wonderland of fishing fun.

This is, of course, only a short resumé of the recreational facilities offered at Lake Wallenpaupack, one of the many bodies of water in this state within easy driving range. It is one of the many areas fishermen are almost certain to visit when touring, seeking new angling territory and discovering Pennsylvania.

SOME MALE ANGLERS I HAVE KNOWN

(From page 13)

he fancies is better than others, and won't tell where he is going. Won't tell you what bait, fly or plug he uses. Makes a mystery of everything. It would be impossible to explain to this character that you don't care where he goes, how he fishes, or with what, or whether he catches more fish than anyone else. For all you know, maybe he employs dynamite.

We all know the Purists, the ones who think there is only one correct way to fish. The truth of the matter is that the right way to fish is to employ the method that gives the user the most pleasure. If a man enjoys using worms, who is the dry fly purist to look down on him? Or, for that matter, why should the worm fisherman scorn the dry fly artist? If someone likes to use a cane pole to fish for panfish, that's his privilege and pleasure. In

the same class are the exponents of Theories. Even if their infallible Theories were right, I still wouldn't be interested. To me, half the fun of fishing is the unexpected—and, if some theory showed me how to catch fish every time, the fun would be gone. I don't want to know that fish will be striking at exactly 2:01 p.m. on a given day. I'd rather be there, having fished some fruitless earlier hours, and suddenly discover that they really are going on a feeding spree at 2:01 p.m.

There are all kinds of Theorists. Some favor certain colors, others watch the wind and the moon, still others try to match the spectrum in lures, some lean to water temperatures. It does make life more interesting for them—but not for those who must listen to them. The joy of fishing still lies in actual fishing.

The list could go on. Men I have met who have been poor companions in boats, men who assume that you know nothing of fishing just because you never fished before under their peculiar, local conditions; men who are poor sports in every sense. I'd rather forget than remember them.

Perhaps I was wrong at that in the beginning when I said the Baddies stand out in the memory. I'm inclined now to believe that the ones who linger longest in the mind are the nice guys, the average fellow you meet along the stream. The one who has caught a nice string of fish, which you admire, and then hesitantly offers you one of the flies he was using because it worked pretty good for him, and "I just happen to have a couple of extra ones along." Or the fellow who shares his bait with you when you have either lost all of yours or have run out. They don't do it with any air of superiority, but simply because they believe, too, that fishing is fun to be shared with others.

And then there are the good companions with whom I have travelled and fished for many years. I got mad at one once, and almost had sharp words with him. We had fished together for years, motoring all along the eastern coast, but one day up on Lake Harmony I noticed him doing something that displeased me. He was in the prow of the boat, which was rowed by a third person, and thus had first crack at each bit of shoreline as we cast along it. And guess what he was doing? Deliberately passing up more than half the likely pockets and spots so I'd have first chance at them! I gave him the devil, and that was the closest we ever came to a

quarrel over many thousands of miles of road, and over much water.

There was one who had a bad heart, and knew that he was going to die soon; but who refused to take it easy, and fished with more vigor than those of us who were younger. I suspect he half hoped he would have a heart attack some day on the stream, and die doing what he liked most; but death came to him in a house. And I once met a one-armed fisherman who told me how sorry he felt for a little boy he knew—he was paralyzed and confined to a wheelchair—and how he used to help the boy's father carry the chair down to the creek so the boy could fish. He never even considered that he was handicapped.

There have been men who have given me much of their time to teach me fly-tying, or who have played host by doing most of the rowing when I visited their favorite fishing spot despite my half-hearted protests, or who have guided me into back-country where I would have been hopelessly lost without their knowledge. As for good companions generally, I think that I fish at home with just about the nicest persons a man could find.

My work requires considerable travel over the continent, and, consequently, I often find myself fishing with strangers when away from home. The most amazing thing about these chance acquaintances is that they invariably turn out to be the sort of guys you would pick as fishing companions. I have gone into the north woods with men I never met before, lived and fished with them for two weeks at a time, and can't recall one that I would scratch off the list of possible future fishing partners.

This speaks rather highly for fishing as a sport that attracts the best of men. There are some heels, as mentioned in the beginning, but I'm inclined to believe they stand out in the memory simply because they are such glaring exceptions.



PENNSYLVANIA ANGLER



CONEWAGO POT HOLES

(From page 8)

river a pock-like moon surface appearance from the air. This concentration within a limited area has resulted in numerous holes being worked into each other, thus forming compound pot holes, and in places resembling a series of connecting but small caverns. Another unique condition is that the diabase in which this grinding was done is very hard rock, not a soft, easily worked variety, such as a sandstone, limestone, or schist.

A challenging feature of these pot holes is the fact that no completely satisfactory answer has yet been given as to how they were formed at this place. Although the mechanics of the actual excavation is well understood, it is difficult to explain what kind of environment must have existed to render the mechanics operative. For example, there must have been tremendous quantities of water coming down the river over a long period of time. Everyone agrees on that point. It has been suggested when the southern edge of the ice sheet stood just north of the Finger Lakes in New York State, the melt water found its way south via these lakes and the Susquehanna Valley. This probably was true, and would account for the

quantities of water needed to furnish the power to do the work. The weak spot here lies in the time element. Some people feel that glacial drainage down the Susquehanna took place too close to the present time to allow for the grinding of these holes in such hard rock.

Another disturbing factor lies in the fact that as a rule pot holes as large as many of those found here are developed by falling, not flowing water. The vertical C-axes, as well as the depth of most of the larger holes, suggests that they are more likely plunge pools. If, in our mind's eye, we could reconstruct some height just above the Conewago Falls, from which the river fell, that might perhaps furnish an answer. Certainly, as in the case of the Archbald pot holes, water falling down through a crevasse in overlying ice is out of the question, for no glacier existed here. The southernmost point reached by the ice in the Susquehanna Valley is in the vicinity of Selinsgrove. On the other hand, the presence of a high ridge from which water could have fallen at this locality, is difficult to postulate.

Still a third difficulty arises to complicate matters. The pot holes seen at

grains until small pebbles and eventually small boulders are added to the grinding equipment. The final product is the pot hole.

Now pot holes are not unusual phenomenon, that is, they are found fairly well distributed around the world. They are commonly noted in areas that have been glaciated. They are found in the rapids of streams. Frequently they occur at the foot of waterfalls. This type of pot hole is sometimes called a plunge pool. The Conewago pot holes are not the only ones in Pennsylvania. Near Archbald in Lackawanna County two very deep ones were ground out of sandstone by water falling through a crevasse in the ice when the glacier covered the area. In the soft chlorite schists of the lower Susquehanna Valley a number of pot holes were discovered when the dam was built at Holtwood. However, the ones at Conewago are different from all others known to exist anywhere in the world. The difference lies first of all in the number. Concentrated within an area of less than one square mile are thousands of these bowl-shaped concavities giving the dry bed of the



"LADIES AND GENTLEMEN—Fellow Anglers—I feel deeply honored in receiving this trophy for catching the record breaking—"

the Conewago Falls. They are absent at the Middletown and Haldeman Riffles. How can we account for this pin pointing of excavation activities? This situation suggests one possible solution to the problem. Let us assume that the first falls, or the Middletown Rapids, which lie upstream about four miles from the pot holes, at one time stood downstream further and considerably higher, and were reduced in height by erosion much more rapidly than the Conewago Falls, at the same time retreating up the river to their present position. Such a situation would provide for a height of fall necessary to supply the excavating power and at the same time it could account for the absence of pot holes elsewhere in this section of the river. But how can we explain the more rapid reduction of the upper falls? The fact that the upper riffles are partly made up of the baked shale may be the answer, but no matter what solution is offered, objections always seem to rise to plague the investigator. That, however, is the fascination of geology.

It is not only the pot holes that are exposed here in low flow that make this portion of the Susquehanna interesting, but also the freak forms that the action of the water and its grinding agents have produced from the diabase of the river's bed. All kinds of grotesque shapes can be seen and one may well let his imagination run wild. Were this area ever commercialized, and let us hope that such a condition will never arise, undoubtedly visitors would have their attention called to such features as somebody's profile, the witch's washtubs, the Devils

Kitchen, and a host of other items easily suggested by the varied forms into which the rock has been worked. In places the surface of the diabase has been polished so smoothly that it almost shines, and jagged edges are nowhere to be seen.

One must bear in mind that this spectacular exhibition may be observed only in periods of low water. When, in October of 1947, the Susquehanna had dropped to a flow of only 4100 cfs., the entire area of pot holes was "re-discovered" by Dr. Samuel S. Simons of Marietta, and publicized by Dr. Herbert H. Beck of Lancaster. Dr. Beck reported that as a result of an article in the *Lancaster Intelligencer Journal* under the date of October 24, 1947, the following Sunday over ten thousand people visited the locality to have a look at the pot holes. It must not be assumed that these holes were unknown prior to that time. Undoubtedly in periods of low water, people living nearby had seen them. At intervals, as long as man traveled or fished the river, the pot holes must have been exposed to the sight of visitors. They probably were seen when the York Haven Dam was built. During the construction of the railroad up the east shore of the river, and the digging of the canal a decade or so earlier, it seems unlikely that they were not observed. However, until 1947, nobody seems ever to have taken the trouble to write or publish a description of the Susquehanna's most unusual geologic phenomenon. At the time of writing (September, 1953), the pot holes are well exposed. A long period of low flow and little rain has created just as favorable conditions to see them, as in 1947, yet very few people are bothering to take the time and drive out and see one of Nature's most interesting geological exhibits.

There are two ways in which one may reach the pot holes. The first is to park your car on the Dauphin County side of the highway (Pa. 441) bridge over the Conewago Creek at Falmouth, walk back over the railroad bridge to the Lancaster County side, and climb down the embankment to the river. Then work your way downstream over the rocks to a point under the first transmission line that crosses the river. There, with a little hunting, you will find the big holes about "midstream."

Another way is to drive down the road from Falmouth towards Bainbridge. Directly after you have passed under the second transmission line,

turn right, down a steep dirt road, across the railroad (very dangerous crossing) and ruined canal, to a point on the river bank known as HESS BOAT LANDING. You can park here, and climb upstream to the pot holes, locating them by the transmission lines over the river.

A few words of caution and advice might be in order here. Should you plan to visit the pot holes, dress in old clothes and above all, wear shoes with good gripping soles for climbing on slippery rocks. It is not easy traveling around over the rocky bed of the river. In places it is quite dangerous. After a rain, such as a heavy thunder shower, no matter how low the river flow may be, the rain water may fill the holes, and they can not be seen to their best advantage. Under such conditions, allow a few days for the water to evaporate. If you do not like too much sun it is advisable to wear either a head covering of some sort, or to go on a cloudy day. It can be very hot out on the rocks so go prepared. If you must climb in a pot hole, be sure you can climb out. This may require help, and that leads to one last warning, don't go out on the rocks unless someone is with you. A slip may mean a twisted ankle or even a broken bone, and you might have a long and painful wait before your plight would be discovered.

Should you take a trip to the Conewago Falls, there are two other unique features of weathering in diabase not too far distant that are well worth a visit. The first of these is the Governor's Stable. This is a huge cave-like chamber formed between a number of tremendous boulders of diabase, weighing several tons each. Here, according to local legend, a highwayman known as "The Governor," used to stable his horse and hide himself, over a century ago. This seems possible, for the opening is 22 ft. in length, 9 ft. in width, and 15 ft. in height. At the end opposite the entrance is a natural chimney which allows the comfort of a fire, and just below the boulders a stream provides a supply of water. The place is hidden in fairly thick woods, off the beaten track, and there is little doubt that in the past it served as a habitation for man. Its exact location one mile east of Falmouth, is shown on the Middletown Quadrangle of the U. S. Geological Survey, edition of 1908, reprint of 1941.

The other unusual bit of weathered diabase lies a little farther away. A few miles east of the river, just north



"Come on Jake—don't be chicken—it'll clear by noon."

of the bridge over which the road between Colebrook (Lebanon County) and Mastersonville (Lancaster County) crosses the Pennsylvania Turnpike, in the same ridge of diabase in which the pot holes were ground, the rock has been weathered into a mass of large boulders that lie strewn around in the woods. Several of these boulders, piled on top of one another so that they rise just above the tops of the trees, give the appearance of a huge dinosaur head, very realistic and life-like, even to the eye and mouth. Actually the head is a balanced rock, and one may well wonder how long it will be before the rock topples over. It is interesting to note that the age of this rock represents the period when dinosaurs lived in what is now Pennsylvania. This has been proven by fossil footprints found in Triassic shales in various parts of the state from time to time. The closest found to this area were from a quarry near Yocumtown in York County.

To locate the dinosaur head, park your car just north of the bridge over the turnpike. Walk north from the bridge about a hundred yards, and turn left on the first woods road you come to. Walk into the woods for less than a quarter of a mile, and the dinosaur head will be on your left. For taking pictures it is recommended that you wait until the leaves are off the trees. The afternoon light from the west is the best.

So we see, diabase has furnished the Susquehanna Valley with a number of very interesting attractions. Whether you are geologically minded or not, makes little difference. If only for the pleasure of a day in the open, go out and have a look. You won't regret it.

SMALLMOUTH LOVE SPINNERS

(From page 19)

I recall one Columbus Day when after trying several spinner-fly combinations I tied on a number two and one-half nickel standard blade with a 1/0 gray hackle peacock. This did not get a strike either. Ready to give up, but as a last resort, I hooked a fly rod pork strip to the bend of the gray hackle. This did the trick. Casting up or quartering up stream I took some

fine fighting creek bass. When it was over the gray hackle was chewed to bits, the hook almost bare of hackle and body. I believe you will find the pork strip a welcome accessory for the stream smallmouth.

This lure as mentioned is quite heavy for even a nine foot, six and one-quarter ounce rod and C level line. Heavy lures are the bug-bear of the spinner fisherman, but the results are comparable to any other lure or method that may be employed. It is admitted certainly, that spinner fishing is not quite as dainty as dry or wet fly fishing.

The spinner devotee studies stream conditions and the ever-changing stream bed just as diligently as the fly angler. Knowing the location of bass, which sometimes changes with each high water, is as important to him as those who fish the rise or hatch. Too, it is just as advantageous to wade carefully and present the lure neatly and accurately. But at the season's end he will be as well satisfied and will have taken his share of smallmouth.

TROLLING WITH SPINNING TACKLE

(From page 15)

on line testing from three pounds up to ten pounds . . . and that covers the field up to the big stripers, sail fish and the casting of really heavy lures and rigs.

The big size reel is meant only for the big surf rod and boat trolling rod. It is really too bulky and heavy for most fresh water fishing and is recommended only for casting heavy plugs and jigs or trolling heavily weighted baits. There is no necessity for having it unless you are going after fish of the thirty pound and over class.

It would seem then that the medium weight reel would be a close approximation of the all-round rig. It is. Though many think it is a little heavy for most fresh water work and could be judged a trifle light for the heavy salt water fishing, the man who can purchase only one reel for use in both fresh and salt is wise to select the middle weight.

All these reels have the adjustable drag removable spool, anti-reverse, but you have your choice of pickups.



The finger pickup, where on each cast you finger the line and place it into the pickup roller, is the most foolproof of the three pickups, for there is little to go wrong. The open bale or arm type is next and this has been known to offer trouble because it may close up on the cast or while trolling, unless kept in perfect condition. It is easily bent out of shape so that instant pickup will not be had. However it is soft and can be readily bent back again. Then there is the full bale pickup, that is, the pickup is attached at both ends of the revolving bale. The line is threaded through it at the start and can't miss picking up the line. The only weakness of the bale, either full or arm, is that in the case of a heavy fish or a snag or rough handling, it will sometimes break loose, thereby causing much grief.

In looking over the multitude of reels at your sporting goods retailer, you'll note many sizes and shapes. Look for a reel with the largest diameter spool, for this will handle heavier and stiffer nylon monofilament better than a reel with a wide spool or smaller diameter . . . even though the capacity be the same. Also, check the number of bale revolutions per handle turn, and select that which will reel in the fastest. Also, if you plan to use your reel in both fresh and salt water, select the anodized aluminum or a reel with a minimum of aluminum in it. Make sure that you lubricate any spinning reel before working the brine. Wash it off thoroughly after use. Remove the spool and clean out the works.

To fasten the line after use, either tie a loop and secure with the anti-reverse in position. For spare spools, pick a wide rubber band, tie in a knot and loop for a tab handle and slip over the line.

In the matter of trolling rods, any-

thing goes from handline up. Your fly rod, spinning combo rod is OK. The old bait casting rod likewise. The conventional spinning rod while fine for most work is a trifle limber for heavy weights and deep trolling. Glass is preferred for trolling and "work horse" use.

Balance the weight of the line to the tip tension. Don't use a light line with a stiff rod or it will snap on strike or the initial savage run of the fish.

Trolling tricks in actual fishing differ little than with any other tackle but there are a wider variety of lures available. Anything that could be said here in regard to trolling technique to lure the big ones applies equally for any other type of tackle.

But in playing the fish, especially when it is near the boat, great care must be exercised for even with the generous stretch of the line the shorter length out greatly reduces the stretch cushion and while you can land big fish on seemingly cobweb like spinning line, the trouble begins near or at the boat. When the fish is close but still fighting, be sure the anti-reverse is on, also ease up on the drag to allow for that proverbial last stand of the fish.

As to terminal tackle, use swivels whenever possible, one ahead of the metal leader then a snap swivel. If you buy lures that revolve, buy them in pairs for both left and right twist. Change them often and you'll avoid a serious twist, kinks, knots and eventually the loss of a long section of line.

Don't swipe at the fish with the net. If you strike the line hard . . . snap . . . and another fish is gone with the hook in his mouth!

THE BIGGER THE PLUG

(From page 21)

the sky as the descending plug showed brilliant traces against the last rays of the waning sun. I was proud as any kid would be, knowing that a fellow artist of the angling clan watched closely from the other shore and saw me finally make good with a slipshod outfit.

The plug fell. But it never reached the surface to scare that bass.

Whammo! The giant rose with a venom, a swirl, a snarl, and sprayed the lake with white water, speared that monstrosity thrown at him snapping his big mouth tight on the wooded fake a foot above the water.

My pole twisted out of all shape. I held on gallantly, thumbing the hot growling reel. I sank into the mud over my rolled up pants, but I didn't care. I wanted to get that whopper!

Slowly he turned, then lifted up again and sprayed the water in another giant surge. The lake seemed inches lower when he rose, inches higher when he slapped again with a tublike thunderous splatter of his tail. I struggled for anxious moments that seemed like hours, making no headway at all. My new found fishing friend cheered from the sidelines. But working slowly I finally turned him and awkwardly cranked the reel with the bent and misshapen pole hampering me no end. After ages, I got him near shore and reached out. The old wallop rose once more, however, and sarcastically threw the jagged and

beaten trebles back at my face. After all, he wasn't going to be caught by an upstart of a kid like me.

There was no joy in Mudville when Casey struck out and the pall around the lake was mighty similar. I limply wound up my twine, turned and wallowed back toward my sunfish, with my pole looking more like a curlicue than an angler's aid. When I deposited the big plug in his tackle box, now missing of paint in a couple of places, quite chewed toward the end, my friend said nothing. What was there to say?

Perhaps that catankerous granddaddy is still swimming in that lake. Surely, there are many others elsewhere and I'm positive they'd rather wait for that steak of a plug than the little tidbit that we like to toss around. Why not go after them with the big plugs? Aside from being easier to cast the big ones generally have a more irregular motion, which may account for their more attractive nature than the regular motions of the midgets.



"Certainly I caught it and I hung it up. What's all this guff about a taxidermist?"

PENNSYLVANIA ANGLER

Since the encounter with that granddaddy, I've never had the pleasure of meeting with another such bass, though I've had my share of lesser palpitating plugging joys. Subsequently, however, most of the local lake bigmouth I've taken—and there have been quite a few—have shown this decided preference for an over-size bait. They've hit unusual plugs at unusual times, too, so don't throw away anything that seems either too big or too atrocious to look at.

I've had seven strikes in one morning on a spinning underwater job which I carry simply because it's so large and heavy I can reach out with it farther than with any other. Another, a shannon spook I've carried without using because of its unusual size finally connected with two granddaddies last year, when in a "weak" moment I tried the plug. You can never tell. This past year I plugged till noon without a strike, then accidentally picked a large pixie-ish-looking wobbling and be-spinnered black Heddon Crab which caught my eye in the tackle box. It landed two nice bass in as many casts and since has been quite deadly.

Upon other occasions I've similarly caught bass unexpectedly with large plugs, different both in coloration, make, and water movement. Above all, they must be worked slowly and with irregular action. While these have been effective for me, bigmouth have refused consistently to hit the little ones.

Our little diatribe if it may be called that is not construed to shut the door summarily on other baits and types of fishing for bass, especially bigmouth. The large plug is not the only attraction in the life of Mr. Bass. But too often that large plug has been cast aside because the little one looks cuter, falls ever so lightly on the water, is less expensive, or seems more in keeping with the streamlinings of the modern angling world. Bass definitely will hit other baits when fishing is done differently: they'll murder small poppers occasionally when used with fly rods, minnows fished with a float, or a good lively crawdad. But when casting—I'd still like to say, let's try smacking them over the head occasionally with one of those big whackey monstrosities, despised of late. They'll get mad if I know large-mouths and sock back at these oversized wooden intruders. And when they do, brother, look for a heck of a fight on your hands.



GOLDEN SHINER

The golden shiner (*Notemigonus crysoleucas*), considered to be one of the most common fishes in Pennsylvania, is also prized most highly by anglers as baitfish. Although it is sought after in winter and summer, the restrictions placed on the netting of this minnow by the state fish laws help it to maintain its population at a high level in most lakes.

Feeding Habits:

An omnivorous minnow which feeds on algae, plankton and minute animal life.

Life History:

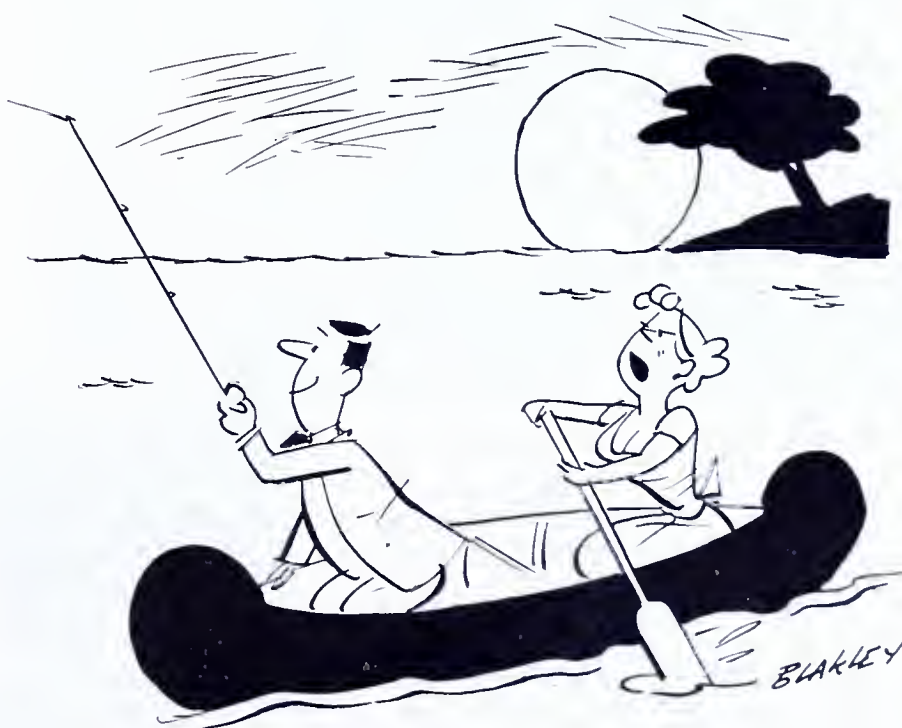
The golden shiner breeds from late May until the beginning of August. It is very prolific—records showing

that a production of over 200,000 young per acre is possible. The eggs are adhesive and are scattered among filamentous algae. At the end of the first year, a size of 2 or 3 inches is attained. The maximum growth seldom exceeds ten inches. The males are usually smaller than the females.

Studies have shown that in winter the golden shiner can exist in ponds with very little dissolved oxygen; but when the water warms, they require as much oxygen as any other species.

Distribution in Pennsylvania:

Found throughout the state. Ordinarily, it inhabits lakes, ponds and sluggish streams.



"So this is why you wanted to get me out into the moonlight!"

The Editor's Angle



DISPLAY WINNER, Sterck's Sport Store, Brookville, Pa. designed this unusual display awarded first prize in National contest sponsored by Sporting Goods Dealer Magazine. Created by Bruce Gordon and photographed by James Crissman.

Dear Editor:

Photo enclosed was taken underneath the back porch of my home. In fact I can cast into the stream and look directly down into the waters of Fishing Creek. The fishermen shown are the Cipolla brothers who need me to untangle snarled lines, replace lost hooks, fix bicycles and look at extracted teeth. They seem to be proud of that bluegill sunfish. In background is old covered bridge spanning Fishing Creek at Forks, Pa.

I am also attaching "That's How It Looks From Here."

PAUL W. FEARN
Forks, Pa.

Looking from the kitchen window in my home and business place, directly North for an appreciative distance, can be seen the clear, clean waters of Fishing Creek. Continuing on their way to join the "River

of the Winding Shore"—the majestic Susquehanna—these waters were fished every day during the trout season of 1953 which ended July 31. Now the banks of the stream are void of the thousands who plied them in quest of fish and recreation, the major portion of which time may be considered as "profitable."

The season's passing was to some not unlike the finale in the drama of life and death wherein an old and beloved friend eventually fails to respond to that endearing invitation: "Come on, let's go fishin'."

Perhaps one of the most impressive obituaries that one could write of the passing of the trout fishing season is contained within the humble statement made by an oldtimer whose pilgrimages to these particular parts have been almost as constant as the stream during the last half century. Speaking of the courtesies experienced at the hands of the owners of the stream he stated: "Everyone of them invited me back to fish again."

Undoubtedly the exercising of a few kind words have gone further to keep the obnoxious "No Fishing" sign from blighting the future of fishing than do all the arguments for and against fishing "rights" which are usually misinterpreted, by all parties concerned.

However, has the season really closed? According to official ruling, yes. According to nature's edict, no.

Turning from the window in the kitchen to a glass paneled door in the same room and facing the East I noticed a bird. With actions as stealthy as a jungle cat, a young Blue Heron



was placing itself into position for the "strike." In the course of a few minutes the stream's population suffered a half-dozen casualties. Evidently each attack was a successful one as from the long sharp bill of the bird an unfortunate minnow wriggled for freedom or from fright.

Suddenly from a protruding limb over a shallow part of the stream fell in atomic-like manner a bolt of blue and white feathered fury—a Kingfisher. This procedure was repeated on several occasions or until the appetite had been satisfied.

Highly optimistic, however, are the signs attendant to fish-life in the stream. Within casting distance from the window several trout were rising, apparently free of imitation lures, their actions so deliberately designed, one of an impressionistic turn of mind would readily recognize their challenges as having bested any so-called adversaries in the battles of the survivors of the fittest. That's how it looks from here.

OCTOBER DAYS

Another year has reached its age of gold;
The tang of burning leaves is in the air—
Autumnal perfume, nature's incense prayer.
A Sabbath stillness rests on wood and wold;
The great Creative Artist seems to fold
His hands, well pleased to find His canvas fair.
Does not such beauty blazon everywhere
How graciously the fruitful year grows old?

Our time, beloved, still is harvest sheaf,
And work remains to do. May strength be ours
To do it well; and when our days grow brief
And chilling frosts benumb our waning powers,
We'll share the glory of the painted leaf,
And resting, dream of spring while winter lowers.

—MARTIN W. WITMER

We learned, with sincere regret the passing along the great trail of a fine sportsman, Bill Swain, West Grove, Pa., on September 2. An article, "A New Silver Platter" by Kenneth W. Thomas appeared in the August issue of the ANGLER, relating how Mr. Swain worked out a new-type leader. A photo of Bill appeared with the article. Happy fishing to Bill across that Great Divide.



Dottie Brouvier with big brown she caught last season in feeder stream to Lake Wallenpaupack.



SOUTH PHILA. CHAMBER OF COMMERCE STOCKS LAKES WITH 3,200 FISH

THEY'VE BEEN BITING in League Island Park Lakes this summer. Here South Phila. High School students Eric DeBattista, Nicky (Lefty) Tumolo, and Charles Snyder are seen planting some of the 3,200 fishes that were stocked at the downtown lakes through the efforts of the South Philadelphia Chamber of Commerce. Officials assisting are, left to right, Nicholas J. A. Tumolo, President, S. P. C. of C.; Dr. Julius R. Mazzola, 1826 S. 18th Street, Committee on Sports; Sgt. H. Dougherty, and Tom Karper, State Fish Warden. Among the many species running are Carp, Catfish and Bull Heads, Calico Bass, Eels and Bluegill Sunfish.

Dear Sir:

Enclosed is picture I feel deserves a space in the good old ANGLER. It is of Richard Baker, 10 years old, with 14-inch bass he caught while fishing the Allegheny river above Tidioute, Pa., at the Wildwood Resort, the second week of July.

ANDREW STEIN

Bellevue, Pa.



Richard Baker, 10-years-old with 14-inch bass he caught in Allegheny River near Tidioute, Pa.

Dear Sir:

The enclosed photo was on front page of the Pittsburgh Post Gazette on Aug. 17. I thought you would be interested in the picture and news clipping for the ANGLER. I am a subscriber to the PENNSYLVANIA ANGLER and also a proud daddy, would get a real big kick out of seeing Mark's picture in the magazine, know he would be thrilled too.

Mark caught this 7½-lb. carp after a 10-minute struggle. He used a No. 6 hook and his own doughball bait recipe as follows: ½ cup corn meal, ½ cup flour—boil 20 minutes in a cloth bag tied at top—cool, put in jar and add vanilla, let set overnight. These doughballs stick to the hook and certainly do attract carp.

CY SELTMAN

Pittsburgh, Pa.



Mark Allan Seltman, 6, took this 30-inch, 7½-lb. carp in Highland Park Pond near Highland Park Zoo, Pittsburgh. Photo was taken by "Topper" Coughanour, Pittsburgh Post Gazette photographer.



Johnny Seargeant, 11, son of Chares Seargeant, Jr., Washington, Pa., with two large-mouth bass, 17 and 17½ inches, total of 5 pounds, he caught recently while fishing at the Citizens Water Dam No. 4, Washington, Pa.

Ellen A. Dietrich, Secretary of the Montgomery County Federation of Sportsmen's Clubs reports in the *Montgomery News* The Montgomery county commissioners, Fred Peters, Foster Hillegass and Raymond Mensch, secured an additional tract of land for the county. The tract is located on the Perkiomen Creek, across from the Audubon Bird Sanctuary which the county recently purchased; and its acquisition is rightly regarded as an asset not only for bird lovers, but for our fishermen, as well. Following cooperation between the Pennsylvania Fish Commission and our Montgomery commissioners, the Perkiomen at this point has already been well stocked with fish."



Donald Kennedy, 12, Huntingdon, Pa., had quite a hassle with this 30-pound carp he caught while fishing the Delaware River at Delaware Water Gap last August 6. Older anglers of the area were of the opinion they don't come any bigger especially for such a small chap.

NEW BASS

SPINNING

BOOK

Freshwater bass anglers, spinning bugs, will welcome a most charming little book just issued by William Arthur Clark entitled, "*Spin Plugging for Freshwater Bass.*" There are only 26 pages in this 4¼ by 6 little book but for a lot of angling information loaded into a brief edition it cannot be surpassed. An illustrated chart of various types spinning plugs is included. The little booklet sells for 80 cents in paper binding, plastic binding \$1.95. In the gift class of economy, it would make a nice addition to any anglers reading list. Address Art Clark, 532 Strathmore Road, Havertown, Pa.



MUSKIES grow big in Pennsylvania. Here's one, 51½ inches long weighing close to 38 pounds. Clyde Kyle, of Conneaut Lake, took the whopper at the northeast end of the lake while trolling a Pikey Golden Shiner. Billy Hough, 4, just can't believe it!

—Meadville Tribune Photo



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NOVEMBER

PENNSYLVANIA ANGLER

1953

DUMAN LAKE DEDICATION - OPERATION MUSKELLUNGE - FERRY DAYS

38.31
1.6 CLUTTERBUGS - TERRAPIN HUNTING - NEW FACE FOR OLD LEHIGH



WE GIVE THANKS . . . to a provident CREATOR, for things we take for granted, the fellowship of friendly anglers, breathless dawns, sunsets and twilights, brooding winds, moon-drenched roads, silent woods, the laughter of water, life, liberty and the pursuit of happiness thru outdoor recreation. Our gratitude is small. Our indebtedness beyond calculation.

COMMONWEALTH OF PENNSYLVANIA

HON. JOHN S. FINE
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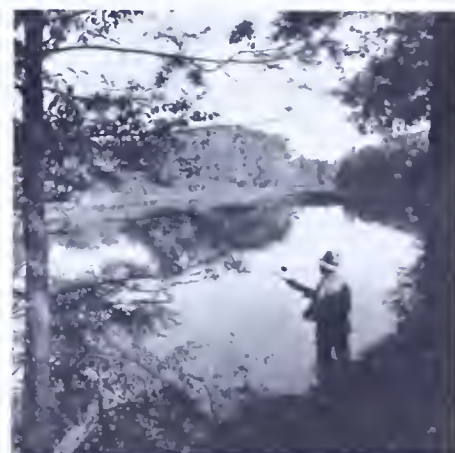
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THE COVER . . . AUTUMN and a lone angler plugs the silent stream in the aging fishing year amid all the gorgeous colors of Fall. Bass season ends November 30.

BACK COVER . . . Third Falls, Wapwallopen Creek, Luzerne County.

—Don Shiner photos



George W. Forrest, Editor

1339 East Philadelphia Street, York, Pa.

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C. A. French, Executive Director of the Pennsylvania Fish Commission, as he approvingly observed the official opening of Duman Lake. To his right is Gerald A. Plummer, President of the Cambria County Federation of Sportsmen's Clubs.

Photo courtesy Tribune and Democrat, Johnstown, Pa.

\$60,000 Duman Lake, Cambria County, Opened to Public



Dr. Robert Koehler of Geistown, who spearheaded the development of Duman Lake, serves as toastmaster at its dedication.

**Lake Stocked with 40,000 Fish by
Pennsylvania Fish Commission**

A view of the speaker's platform where Cambria County officials joined with Fish Commission officials in dedicating the lake.



J. Allen Barrett, Director of Public Relations of the Pennsylvania Fish Commission makes the official dedicatory address. Barrett paid warm tribute to the sportsmen of Cambria County for their undying interest and work in making this grand lake a possibility. In conclusion he conveyed the warm best wishes of Pennsylvania's Governor, the Honorable John S. Fine, and the entire Fish Commission in the hope that this lake and its surroundings will provide an environment for wholesome entertainment and recreation now and throughout the years to come.

DUMAN LAKE, located midway between Nicktown and Belsano was formally dedicated at ceremonies on September 26.

The lake, constructed at a cost of nearly \$60,000 by the Pennsylvania Fish Commission, provides water facilities for recreation purposes for residents of the north of the county.

J. Allen Barrett, director, Division of Public Relations, Pennsylvania Fish Commission, was principal speaker. Brief remarks were made by officials of the various sportsmen's groups over the county and state.

Dr. Robert Koehler of Geistown, chairman of the Duman Lake Committee, was presented a plaque by sportsmen for his part in making the lake a reality. Presentation was made by Harris Breth of Clearfield, outdoor sports writer, radio and television announcer and assemblyman.

Officers of the Cambria County Federation of Sportsmen's Clubs, and members of the Cambria Co. Parks and Recreation Board were introduced. Both the federation and the board played an important part in the construction of the lake.

Guests of honor included Charles A. French, executive director, Pennsylvania Fish Commission; C. R. Buller, chief fish culturist in charge of state hatcheries, and Gordon Trembley, chief aquatic biologist.

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DUMAN LAKE DEDICATED— Continued



C. A. French, Executive Director, Pennsylvania Fish Commission, stocks first of four truckloads of legal size bass, black crappie, catfish and perch in Duman Lake following opening ceremonies. Anglers in background watch proceedings anxious to wet a line. Nearly 40,000 fish were stocked in the lake since last spring.



Enthusiasm was high as the fishermen fairly swamped the Fish Commission's tank trucks to watch the stocking of the lake.



A view of a small part of the lake showing the spillway and the fishermen who began fishing immediately after the stocking.

ALSO among the honor guests were county commissioners Pat Farrell, Thomas A. Owens and Cyrus W. Davis. The commissioners in setting up the Parks and Recreation Board, have financed the construction of the park area below the lake, with county funds, now in course of construction. At the present time, \$15,000 has been allocated.

The Spangler High School band presented a concert prior to the afternoon program, and at its closing. Approximately 2,000 persons attended the ceremonies.

Rev. Father Otto Wendell of Nicktown gave the invocation and the benediction was pronounced by Rev. William E. Fenstermaker of Patton.

Following the dedication ceremonies, four truckloads of fish were stocked in the lake by the Pennsylvania Fish commission with fishing permitted after the event was completed. Included in the stocking were legal size bass, black crappie, perch and catfish.



FIRST SEINE haul is made through rearing pond . . . everyone wonders . . . "How many?"

Operation Muskellunge

Fish Commission Begins Muskellunge Culture

By GORDON L. TREMBLEY

Chief Aquatic Biologist, Pennsylvania Fish Commission

Photos by George H. Gordon,
Official Photographer



YOUNG MUSKIES are transferred directly into tanks on the Commission's transportation trucks.

THE first attempt by the Pennsylvania Fish Commission in recent years to raise muskellunge artificially in ponds has met with a fair degree of success. Starting with only a pint of eggs which weighed less than a pound, 250 young muskies weighing over 50 pounds were produced at two ponds at the Commission's hatcheries in 1953.

The eggs were incubated and hatched last spring in jars at the Union City Hatchery in Erie County. Shortly after hatching

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TWELVE INCH length is recorded on this specimen about five months old.



A FEW FISH are carefully weighed.



REARING POND, where young muskellunge have been held over the summer, being slowly drained to concentrate fish at one end.



FROM REARING POND TO NEW HOME in less than an hour. Stocking muskellunge in Pymatuning Lake.



PRETTY, ISN'T IT? Turning Pennsylvania streams into dump places is glaring example of persons thoroughly unfamiliar outdoor etiquette can ruin fishing!

Clutterbugs Litterbugs Vandals

**Are ruining your Fishing - Hunting -
Outdoor Recreation**

By WILBERT N. SAVAGE

NEATLY tucked away somewhere in the works of a mildly acclaimed playwright there's a copy of an old fashioned melodrama telling of a heroine who was driven to curse her "beauty" because it had attracted a heartless villain and the imminent doom about to befall her when the villain stepped into the scene of action.

This incident was once illustrated and used by a prominent conservationist when he said, "If Earth could speak as did the heroine in the play, there would be times when she surely would be tempted to curse her beauty, for she attracts villains who abuse and destroy, and the heroes are those who seek out the wounded areas and ministering the balm that mends and heals and cleans." . . .

In plain words the conservationist was speaking of the vandal and

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WHITTLING LOGS are provided in many parks so whittlers can get it out of their systems without destroying or marring beautiful trees.



IMPROVEMENT on Nature? This artist evidently thought so, proceeded to stupidly carve into a fine tree in one of our state forests.



KEEP PENNSYLVANIA
GREEN!

KEEP PENNSYLVANIA
CLEAN!

THIS MESS was left by careless picnickers for caretaker to clean up. Another reason why our state officials become prematurely gray.



FIREWOOD WAS SCARCE so some jerks simply tore off shingles on this shelter. Note artistic carvings by whittlebugs!

THIS COSTS TAXPAYERS MONEY . . . when vandals destroy public property. Many people need intensive studies in outdoor etiquette.



litterbug; and the men who must try to repair, replace, and clean up after careless adults have notoriously demonstrated their lack of maturity, respect for outdoor places of beauty, and a miserable abandonment of plain self-respect.

Why people clutter up places of idyllic beauty with wretched-looking assortments of trash; why they cut, chip, dig, burn, use road and trailside signs as targets, wreck comfort facilities set up for their own use, abuse sources of fuel and drinking water; and even steal garbage cans, cooking equipment, etc., constitutes a phase of human behavior that certainly involves ramifications reaching enigmatic proportions. But we do know that these unfair individuals are perennially with us—poor sports at large and doing things their own way on a regular schedule of shameful negligence, virulent trampling of privilege, and reckless disregard for public property and even carelessness that sometimes threatens human lives!

Once, when I saw a boy carving his name and the name of a girl on the smooth trunk of a beech tree, I asked him why he was defacing something that had generously served at least two generations with a cool canopy of shade.

"I enjoy carving on a nice smooth tree," the lad told me. "Dad taught me some tricks in fashioning fancy letters. He always said a beech and black birch and a soft maple were ideal for initialing. It doesn't do any harm—gee! look at all the other trees with initials and pictures cut on them."

Dad taught me! It reminded me of a boy confessing that his dad had taught him to gig spawning trout, or to dynamite a freshly-stocked stream. The boy's dad, I learned, wasn't living, and somehow I felt sorry for a nice-looking young chap who was taught to believe there was something romantic in carving initials on trees. Did he think there was harm in shooting into a heavily occupied squirrel's nest, or in the shame of shooting at the brass atop the flagpole in the Flood Control Recreational Area? I was afraid to ask.

Vandalism in Federal and State parks, and other recreational areas—including undeveloped spots of outstanding aesthetic significance—takes on a number of forms; and rank carelessness and inconsiderate lack of tidiness are sometimes carried to a point almost equaling the outright flagitious acts of the wanton destroyers. Let-

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A New Face for the OLD LEHIGH

By HARVEY R. FRANTZ

THE LEHIGH RIVER, along with the old Lehigh Canal, is in for a face lifting operation if the sportsmen of the Lehigh Valley have their way. Representatives of the county federations of Carbon, Lehigh and Northampton Counties met last spring and after careful consideration organized a Lehigh River Restoration Association.

The Association, modeled after the Inter-Club Canal Commission, intends to develop for fishing and recreation all the available portions of the Lehigh Canal immediately. The Lehigh River clean-up and development will be taken on concurrently with the Canal.

Before any negotiations could be entered into with the Lehigh Coal and Navigation Company, owners of the 46-mile long canal, it was necessary that the Association be incorporated. This was accomplished in August and immediately letters requesting the leasing of various portions of the canal were sent to the company.

Some purposes of the organization, according to the charter application include: "to improve the Lehigh River and the Lehigh Canal and their banks in Lehigh, Northampton and Carbon Counties; to abate pollution; to make them once again the habitat for fish, wildlife and to improve the river for recreational and industrial use."

For the past year individual sportsmen clubs had toyed with the idea of leasing portions of the canal in their vicinity for rehabilitation. Two clubs had even gone so far as to request written permission from the company. However, upon the organization of the

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WHERE face lifting operations are soon scheduled to commence. These views are typical of the old canal as it looks today.



"DON'T BOTHER about lunch," Charlie McClellan phoned, "I'll take care of it." He was true to his word.

At noon the next day, I pulled the boat up onto a sandy beach. We'd spent the morning casting with only mediocre results, but it was a pleasant experience anyway. The autumn foliage was bright and the atmosphere was sharp and pleasant.

"You clean the two bass," Charlie

suggested. "I'll build a fire and cook them."

"But we haven't a skillet or any utensils or . . ."

"Don't worry about that," was all he answered.

So I cleaned the fish while Charlie built a fire around a circular, flat rock he'd found nearby. He then cut a pair of forked willow sticks. "Now let's see those fish," he said.

Charlie took a roll of aluminum foil

from his musette bag. He tore off a piece about two feet long. He also produced a small package that contained several strips of bacon, a salt cellar, a few onions and potatoes.

On the spread piece of foil he placed one strip of bacon. On top of that he placed one salted fish. Then several thin slices of onion and potatoes. And finally another strip of bacon. The whole works was sealed into an airtight package of foil and with the forked sticks, was placed on the flat rock.

Charlie made a similar package with the second fish. "Just in case our luck was all bad, I brought these." Charlie produced two circular packages. "Hamburgers. We can cook them, too, anyway."

Next, my companion selected two more pieces of foil. Using one end of his aluminum fly rod case as a mold, he shaped the foil around the end, forming two perfect drinking cups. Filled with water, he placed them on the rock.

For fifteen minutes or so we post-mortemed the morning fishing. And then we pitched into the finest lake-side banquet ever prepared so quickly so easily, and with so little equipment. The fish retained their completely fresh flavor and the potatoes were well done. The hamburgers which had been completely painted with mustard, garnished with celery salt and a large slice of onion beforehand, were the most delicious I've ever had.

As soon as the water came to boil, Charlie removed the cups and placed a tea bag in each. That cinched the whole event.

Foil has provided the greatest boon to outdoor cooks in many a year. In a jiffy now, it's possible to prepare a complete, warm meal. Fish—any kind—can be cooked immediately, right where they're caught. And there's no need to carry bulky pots and pans to do it. You can carry an oven, a skillet, pots, pans and dishes in your hip pocket.

An airtight foil package is a miniature pressure cooker. All the natural juices, plus any seasoning you add, are retained and blended. Cooking time for average size fish is so short, perhaps fifteen or twenty minutes, that little time is wasted in preparing the meal. After one trial, you'll be finished with cold, dry sandwiches for life.

Foil has given new versatility to the outdoor cook. He can prepare nearly anything in less time than it takes to tell about it. Frozen foods of the type

Less Toil With Foil

- In Outdoor Cooking

By ERWIN A. BAUER



ON THE FIRE, potatoes, fish, hamburgers, etc., are done in a hurry, easy to cart along with other angling equipment, a new fast style of outdoor cookery.



CHOW'S ON . . . complete outdoor meal cooked with aluminum foil feeds the inner fisherman.



FISH, wrapped with bacon strips, potatoes, in foil ready for the fire.

commonly found in grocery stores nowadays are perfect. Take a package of frozen beef stew or Hungarian goulash, for example. Exchange the original wrapper for an airtight foil wrapper, pitch it on or near the fire—and you'll have a hot meal in five minutes. Incidentally, the frozen fishes on the market are splendid when given the foil treatment.

You can quickly build a serviceable reflector oven, too, from foil. Hot biscuits are only a simple matter after that. You prepare the dough before you start your trip.

You can carry a baking potato, too, in a foil wrapper. Just put it on the fire for half an hour. Try cutting a conical section from a potato. Fill the

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COMPACT, economical, outdoor meals take on pressure cooker flavor wrapped in foil, no dishes to wash.



THE RIVER stopped the early pioneers but not for long. The ferry boat solved many transportation problems for these hardy frontiersmen.

GLANCE at a map of Pennsylvania and it is readily evident the state has a myriad of streams. From the numerous watersheds appear some 30 major streams, flowing like silver ribbons through fertile valleys. It is because of these many waterways the Keystone has some really remarkable fishing. Two to three hundred years ago the early immigrants used these rivers extensively for travel into the

interior. Settlements were gradually established at strategic points along the streams with corduroy and dirt roads made through the hinterlands connecting these small outposts with the newly founded colonies.

When these daring travelers of those early years ventured a journey over the old roads and trails, they rejoiced when approaching a town, but the one great peril they dreaded was

crossing large, deep streams. Some of these were bridged with wooden structures, some sturdy enough to withstand a team of horses and a wagon though the floor planks rattled like thunder under the wagon wheels. Others had only foot bridges. The really large streams were bridgeless and it meant fording the water through

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Ferry Days

on

**Penn's
Rivers**

By **DON SHINER**

ECHOES FROM THE SUSQUEHANNA

Ferries in Operation—Boating By Moonlight—Heller Flat Boat in Service.

The flat boat owned by S. K. Heller was put in operation last evening. It is 29x8 feet and will carry seventy-five people without overtaxing its capacity. An eight horse power gasoline engine of the Brower & Company make propels the paddle wheel in the rear and pretty good time can be made. C. D. Fowler arranged the pipes and connections on the engine ready for starting it last evening.

Both ferries are now in operation and are used to such great extent that hardly a minute's time is given for little repairs which are necessary. People crowd on the free ferry just as soon as it lands and the ferrymen lose no time in making their trips. The ferry is equipped to make the best time possible and is only handicapped by the lowness of the water.

Some fifteen or twenty pleasure boats were seen about on the river last evening, but in this the same as in operating a ferry the low water is a drawback and then too the suction from the falls makes the water quite swift and the real pleasures of boating can't be derived from rowing at this place.

Last evening a slight mishap occurred on the Heller flat boat, when the engine broke near the shore and a piece flew out striking Mr. Heller and knocking him backward. He was caught by one of the employees before striking the water.

One lone glgger was seen out on the river one night this week and he is the only fellow known thus far to revive the practice, which is now regulated by law. This sport, a few years ago, was most extensively entered into and hardly a favorable night passed but what there was seen fifteen or twenty boats out in the vicinity between Beach Haven and Briar Creek and some great catches were made. The sport was very fascinating and it took long practice to become accurate at spearing a fish or eel as it shot through the water.

The two boys who drowned in the river at Wilkes-Barre last week swelled the total to twenty-six during the past several months to lose their lives.

INTERESTING NEWS FROM OTHER TOWNS

What Our Nearby Neighboring Townsmen are Doing in Daily

NUREMBURG A PROGRESSIVE I

Plumber W. G. Fowler is Twenty Bath Rooms 'in

OLD NEWSPAPER MORGUES contain historical accounts of the operation of the old ferries. This clipping from Berwick, Pa., Enterprise of July 22, 1904, tells the story.

FORDING was dangerous but it had to be done until the early ferry started operation. Here's an old springboard on way to ferry bound for an Independence Day parade on opposite bank of the river.



BEACONS on shore guided this steam powered ferry of late 19th, early 20th century. These boats carried cargo and passengers.

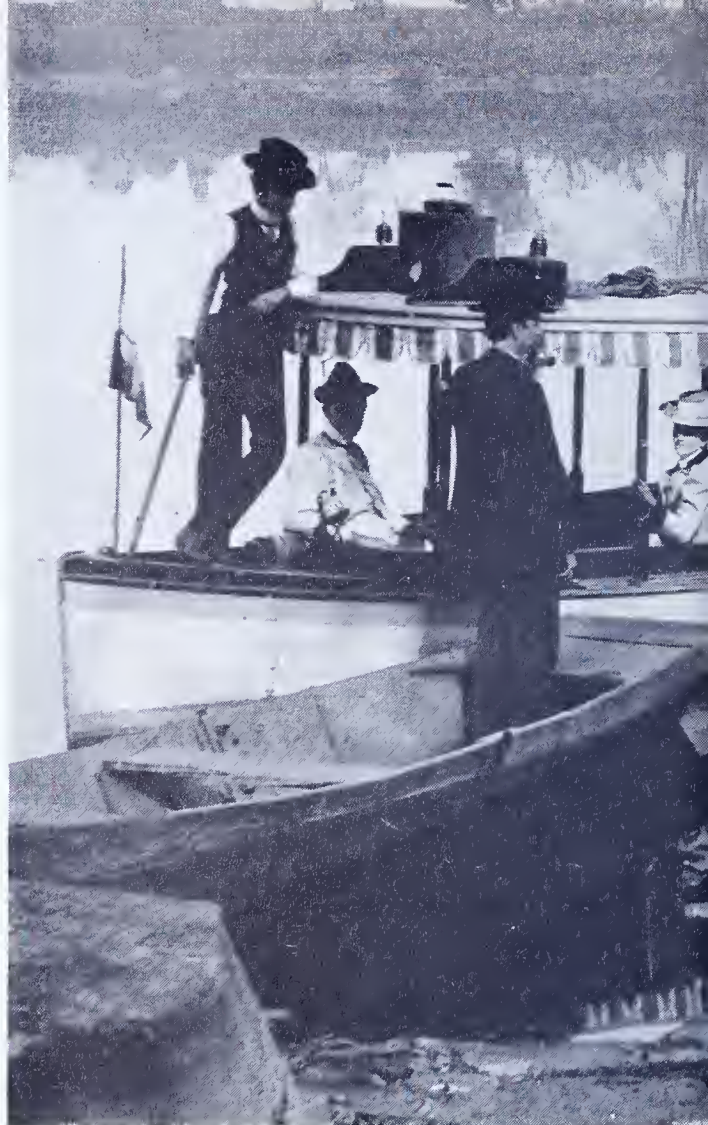


FERRY BELL signaled the boatman passengers were awaiting a trip across the river. Old bells of this type were common at ferry sites.

raging current which nearly, and sometimes did, sweep away the wagons and horses as well. The problem of crossing Penn's streams did not endure for long. These hearty pioneers developed ferry boats and one by one the old roads and trails converging on the banks of the stream were connected with these crafts. They played a great part in the eventual transportation development of this state and doubtless even contributed to the present flourishing interest in fishing.

It is interesting to delve into history for the first mention of these boats and to learn of stories, sometimes heroic tales that centered around them. For example, at Penn's Manor, where the Delaware makes its majestic turn toward the south and a few miles upstream where the falls appear, some Europeans settled in the year of 1624. Here, 16-years later a ferry

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➤ EARLY FERRY at Berwick crossed Susquehanna by cable system, was large enough to carry two teams, horses and wagons. Rowboat in tow was for passengers. At far right—same type barge of yesteryear now rotting away, still utilized by Pennsylvania's anglers.





FANCY FERRIES became popular in early 1900's. Here's one that operated between Kingston and Berwick, specialized in picnics, conventions and outings.



CABLE FERRY is still in operation today across tributary of the Delaware above Easton. Boats shown are today's improvement over the old barges used years ago.



THE North Branch of the Susquehanna moves from New York State into Pennsylvania in what is called the "great bend." Flowing between Pennsylvania hills and swollen by Pennsylvania waters, the North Branch, possibly deflected by glacial deposits, returns to New York State, but in leaving Pennsylvania it does not abandon Susquehanna County, which is its name sake. Entering the county, the traveler must wade or bridge Susquehanna waters.

Small streams, originating in tiny lakes, flow either west into Bradford County and the main stream, or east into the Lackawanna and thence into the Susquehanna. Strung together, the lakes are Laurel, Quaker and Forest, Elk and Fiddle, Leah and Trip. Montrose, the countyseat, commands the sources of Meshoppen and Wyalusing Creeks and thus belongs to the Susquehanna. Other little streams in Bradford and neighboring counties flow from little lakes.

The "great bend" is just what the name implies for the river, after flowing west for 40 miles in New York State but never more than 8 miles from Pennsylvania, curves again south and has a tryst with the Tioga, originating in Pennsylvania and here called Chemung. Together the two streams turn south.

South of Tioga Point between broad fields of grain, the river continues for about 15 miles in an almost straight course. Before it passes Towanda it begins to flow in deep valleys with graceful curves paralleled by wooded hills. Then it is joined by Towanda Creek, the Wysox, the Wyalusing, the Little Tuscarora, the Mehoopany, the Tunkhannock, and from the northeast by the Lackawanna, broadening and deepening through these jointures.



The curves of the river below Towanda move out at Wysox, in above Standing Stone, and out again at the mouth of Rummerfield Creek.

The "standing stone," a huge slab 15 feet broad and 4 feet through, is embedded in the river and projects 24 feet, a monument to the mighty glaciers of the past.

Its curves less bold, its current less rapid, the river cuts through the mountains out of Wyoming County and into the Wyoming Valley. Below rock-stripped Campbell's Ledge, the river turns at a right angle and makes its way through the broad-floored valley in a southwesterly direction. At Pittston enters the Lackawanna, not nearly so large as the tributaries presently flowing in from the east.

Years ago anthracite coal was transported on the Susquehanna and its tributaries.

The city of Wilkes-Barre lies on the east bank of the Susquehanna. At Nanticoke, out from the narrowing valley, the river leaves barely enough space for the highway and two railroads.

Tributaries of the river have been black but now they are clearer. Coal, however, is still present. Salvaged in large quantities, it is deposited in pyramids nearby or carried sometimes high in air to the buyers' trucks.

In a broad valley eastward to Wapwallopen, then southwest to Berwick, the island-dotted river ambles on.

Joined by the Lackawanna at Pittston, the North Branch, which has coursed through Pennsylvania for about 200 miles, is swollen by many creeks—Harvey, the outlet of Harvey Lake; Hemlock, Shickshinny, Wapwallopen, Fishing, and Catawissa. A

river of moods

By **WILLIAM BOYD**

(Illustrations by N. Rosato)

little farther on it receives its largest tributary, the winding West Branch.

The North Branch is a big river running so swift in many places it is almost impossible to make progress upstream by rowing, so outboard motors are popular and, indeed, in some instances entirely necessary.

If you prefer to do your fishing in deep, quiet holes such places are available and if you like water that runs deep and swift, it too, is there. Boat fishing, as is to be expected on a body of water as big as the North Branch, is popular. There are hundreds of boats for fishermen, most of them privately owned but also a supply of rentable craft sufficient for the purpose except on holidays and some week-ends when the bass and salmon are striking better than usual.

Bass and walleyes are taken on all kinds of bait and with the usual assortment of artificial lures, but the best fishing usually is in the late autumn after frosts have killed off the insects upon which the game fish feed.

Those who visit the North Branch more or less regularly in search of bass and wall-eyed salmon have long since learned when the stream is running thick with sediment they might just as well not put their fishing rods together, for it is quite unlikely the bass and walleyes will take anything they might have to offer.

But when conditions are right they will have lots of fun and their creels will be well loaded when they are ready to return home.

My son-in-law, Jack, who has fished from the lakes of Minnesota to the Atlantic seacoast and beyond, was just back from Cape Cod Canal, where his success with striped bass had been quite indifferent.

As might have been expected of a man who would rather fish than eat, he wasn't in the least discouraged but was raring to go in quest of fresh water fish. It was at his suggestion that we set out on the 65-mile journey to Homets Ferry, near Wyalusing, in Bradford County, taking with us Jack's brother, George. It was quite a pleasant summer day, not too hot even though bright and sunny.

My friend, Grover P. Miller, has a beautiful summer home at Homets Ferry but he was at his permanent home in South Williamsport when we arrived at the North Branch of the Susquehanna early in the afternoon.

Grover's neighbor on the river bank is Romeyn C. Sterling, sealer of weights and measures in Bradford County, whom I had met some months

before while spending a week-end at the Miller home. Mr. Sterling, too, has a modern, attractive home within a stone's throw of the river, an advantage which I envy him no little.

He was at home when we drove across the railroad tracks and down the lane to the river, and when I hailed him graciously offered us a parking place in his garage driveway. I inquired as to where I could procure a boat for the afternoon and he quickly replied:

"Boat? Why I'll take care of you. Help yourself down there at the wharf. You'll find three boats there and you can have any or all of them for the afternoon if you want them. I'm not going to fish today."

My accommodating friend accompanied us to the river's edge and, learning that Jack had with him his outboard motor, suggested we use the largest boat of the three . . . if we weren't superstitious. Apparently noting the puzzlement with which I received this suggestion, Mr. Sterling said:

"You notice those charred spots in the boat? The fire that caused them almost cost a man his life a few days ago. The fire jumped to the man's clothing after his outboard motor exploded and set fire to his can of gasoline. If he hadn't jumped into the water he'd be a dead man today. As it is, he's a painfully burned individual in for a lot of suffering before he is all right again."

Our helpful and obliging friend suggested we take two boats inasmuch as there were three of us, remarking we could fish with greater comfort if there were two of us in the larger boat and one in the smaller. So we tied the anchor chain of the boat to which we clamped the motor to the

bow of the smaller boat and put-putted across stream.

When we reached the main channel of the river Jack who, with myself, occupied the larger boat, untied the anchor chain of the boat occupied by George and we let the current carry us down stream as we cast our lively stone cattles toward both shores or trolled them back of us.

We caught fish immediately but unfortunately the bass were too small, some of them not much larger than the stone cattles they attempted to swallow. In fact, we caught a full score of bass in that first hour or so and not one of them was large enough to keep.

Jack and I decided to try a bit of still fishing in the deep water along the north shoreline, and had just anchored our boat when we noticed a disturbance in the thick scum along the opposite shoreline. We could see the dark back of something large protruding from the water. We were of the opinion it was a large carp which had ventured into water too shallow for him but our curiosity got the better of us and we pulled up anchor, gave the motor a twirl, and chugged across stream.

When we were within drifting distance of the place where the back of the water denizen protruded from the foamy scum and the water weeds, Jack cut the motor and we drifted directly toward the thing. We were puzzled when it did not become alarmed and attempt to escape as we approached it, and indeed the bow of the boat was almost upon it before it submerged and we saw it was a huge snapping turtle.

Our curiosity satisfied, Jack yanked the motor's starting rope and we returned to the deep water of the oppo-

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SOUNDING RODS are standard terrapin hunting equipment; hunters (or fishermen) probe stream bed via sound. Shown are Clarence Beyerle, Pottsville; Charles Bensinger and Ralph Sattizahn of Schuylkill Haven.

Terrapin Hunting

Something Different for the Sportsman

BY PAUL F. MURPHY



DISTINGUISHING marks on terrapin are pointed out by Charles Bensinger (center), to Clarence Beyerle (left). Along with Ralph Sattizahn, the trio have been in the terrapin hunting sport for more than 20 years.

THE CATCH, 15 terrapin taken in stream near McKeansburg. Many of the diamond backs are returned as undersize, are protected by law, fishing license required to hunt them. (L-R): Paul Murphy, Ralph Sattizahn and Charles Bensinger.



The distinct honor of being included into the select group of sportsmen known as "terrapin hunters" was conferred upon Clarence Beyerle of Pottsville and this writer, recently.

Twenty years of seeking this member of the reptile family have taught Charles Bensinger and Ralph Sattizahn, both of Schuylkill Haven, a great deal about their habits. These expert terrapin hunters found two novices who were willing to learn all that they could impart in the short space of time allotted to this sport.

Sometimes known as Wood Turtle, or Diamond Back, the red-legged terrapin is sought by sportsmen because of the succulent soup that can be concocted by using the tasty flesh as the basic ingredient. Terrapin are found in almost every fresh-water stream in Pennsylvania. They are protected by law and may be taken only between November 2nd and the following March 14th. A fishing license is required to hunt them and a daily limit of five per person and fifty a season

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LITTLE in the local fishing world is more difficult to comprehend than the confusing antics of the walleye. If there were a more contrary finny fellow than this offshoot of the perch family we'd really have some sort of a two-headed sensation. For the walleye is at once a hot tempered prima donna that snaps at anything around it during its weaker moments, giving out with a happy free-for-all to those who happen to be on hand at this joyous time, and then again is called all sorts of uncomplimentary cognomens by others because it is condemned as a fickle opossum that comes in dead as an old log on the line. The opinions with which this fish has surrounded itself among the total of the angling clan make it difficult to tell truth from fiction about its life. And each day new members are added to the condemning and complimentary tribe, those who continue to think it is a low down louse as well as others who volubly assert that it is well worth the addition to any waters.

Bigmouth whack a plug with venom, a trout will gulp a minnow almost any time, a sucker likes garden hackle, and a crappie invariably hits in the spring,—we associate fish with their most common eccentricity of habit. But the walleye—well, the walleye can be noted for doing any of these at almost any moment and perhaps may include a few other confusing antics on its agenda to boot. Topping all this he chooses the most unexpected time to try them on you. Found both in our gravelly bottomed lakes, and larger streams and rivers more and more each day, this confusing critter of a fish is a pastmaster in its obnoxious ability to outwit you more often than you would like to admit by refusing to hit what you offer unless you dish it up as an expert bait chef just to suit its mood. And most of the time at that, he doesn't like your menu. Because these variable moods which the walleye displays are apt to be most disconcerting to the best fisherman one might almost adopt the philosophic motto, "Catch him when you can."

When it is orthodox, the walleye almost exclusively is considered a bottom feeder which hits artificial bait fished very slowly, minnows, nightcrawlers, or some red beaded spinner combination. Rarely or never considered as a game fish that rises to the surface for bait of any kind, it is also thought of as a fish which hits more often in cool weather than when the mercury is pushing the lid off the thermometer.

Yet there are many paradoxes to this thumbnail summary of its life. Contradictorally, a friend of mine asserts the most fun he's ever had was with walleye when he began plugging for bass with a surface Vamp in a rather large lake. Never seeing a bronzeback, nevertheless he got action and more of this milky-eyed jokester many of whose representatives repeatedly hit top water and fought for his plug. Yet any fishing fool will tell you that walleye just aren't supposed to surface for plugs, preferring not only those that run under water but in fact those so close to the bottom that plugging for the walleye can often be an expensive chore considering the number of snags one can hit and plugs one can lose.

My brother, Stan, likes to expound on the fun attendant to walleye fishing. He gets them more often than I'd like to admit. Comparison of our creels proves his prowess over the walleye is keener than mine and he is one of those anglers who primarily fishes for them during the first few weeks of the season and very late in the fall. Like many another fisherman he prefers to believe they're a cold weather fish, which is largely true, yet the biggest whopper I ever saw caught (in photo) hit a minnow in the middle of the afternoon on a hot July day.

What makes the walleye so contemptibly indifferent at one time and so pleasantly cooperative at another? Is there any method that can be used which may predict success in catching it? Certainly there is, but even what follows isn't positive insurance for getting the fish, but merely suggests that your odds become better.

Walleye, as unpredictable as they are, even as other fish prefer certain baits at certain times of the year, and are caught on entirely different rigs in different localities.

Let me illustrate. In the Pymatuning where walleye fishing has become a fine art, boats troll endlessly day after day for the fish. Yet success comes only with a limited number of baits. Here the walleye is most quickly inveigled with a June Bug Spinner trolled with a nightcrawler trailing; secondly, by being lured with flatfish, primarily of two colorations, orange and black, and silver. Whether these baits resemble food fish of the lake might be a question but it is a known fact the fish will smack these quicker than artificials of any other kind or color. Surprisingly, it seems to matter little what time of day you troll, for the fish are caught at most unusual hours.

My friend again, on the other hand, who used the Vamp often fishes for them in the Allegheny River, another prominent walleye hangout in Western Pennsylvania. Here he says he would hardly dare use anything but a River Runt, primarily of a scale finish, in the part of the river which he fishes. But others say that an artificial crab is good, or a red beaded spinner-streamer combination, or small spinner and minnow combination used in the riffles.

In fishing for the low feeding walleye often the bait will get snagged. A sinker which must be used to keep terminal tackle near the bottom also may cause no end of snags and lost plugs. When plugging, to prevent the unfortunate consequences of lost plugs, try using weak line between bait and sinker and set sinker below plug. If the sinker snags with the weak line it will be lost, but the plug will be saved. Thus there's consolation in not losing a dollar bait on every other throw in rocky or riffled water which the pike often prefer, or low lying stumps in a lake. Furthermore, setting up a plug in this manner permits you to change it

(Turn to page 29)

Wheedle the Walleye

By

THAD BUKOWSKI

a tribute to

PENNSYLVANIA'S GRAND CANYON

By Hamilton Dalton

Dean of Pennsylvania Radio Commentators

"Town Crier of Philadelphia"

NINE thousand, nine hundred million billion cubes of dirt—each one foot in size! Deer compacted, tree ravaged, brush broached, rock pierced and water coursed. Here the ghost of Mintolonkwee crushes blueberry and huckleberry nectar filaments against the earth's tender bosom, and the aromatic blending wafts enchantment during a midnight vigil.

Where? In the erstwhile meat box of the Red Men (Pennsylvania's Indians, with a slight cadre of their "poaching" York State tribesmen). More specifically at Wellsboro in Tioga County of the Keystone State. Visitors often assert the spot truly betokens kinship with the first ages, which is of course another way of saying, "the forest primeval."

We're quite persuaded the dirt count is reliable since we have it on Indian-tested assurances, those presently baffling yardsticks which were inexplicably understood by primitive man. Without which understanding this Nation, as indeed no Nation could have buffeted Nature's rugged laws in the inching progression from cave dweller to cliff dweller. Your true woodsman ALWAYS understands that ancient man possessed intelligence before he learned how to speak.

In a great fissure extending for fifty miles in a curving sweep as gracefully feminine as the opulent Harvest Moon; as deep as the profundities of a beautiful woman's eyes—and almost as provocative—there is splintering grandeur as fertile as rich earth—all nine thousand, nine hundred million, billion cubes of it.

Skyscrapers? You've only to tread the bed of Pine Creek and look up—upward to the sky! Your gaze arrested by sentinel monoliths of stone, which reflect old Sol's rays from myriads of windowing minerals; their bulky lines etched by towering tree gargoyles, now bespeaking Heaven's gentlest blessings upon those who seek out Pennsylvania's Grand Canyon—but later, to shade your climb to the summit!

No shelving on an apartment cliff, no clatter of man-made sound to mute

the symphony of whispering shrub, moaning tree, galloping stream, harmonizing with the calls of Nature's little things. Crawling, swimming, flying, leaping little things of the wild! A wild that is tempered only by the yearning of all things good and beautiful to make motion the acolyte of enjoyment. In such a place necessity thrives on contradiction!

Ye who are haunted by fears of the unknown; ye who are harassed by the blows and the din of cities, come and learn with Epicurus that there is no necessity to live under the rule of necessity! Remember? He said necessity is an evil. Learn—perhaps to your everlasting surprise—that civilization at its highest is SELDOM mild, whereas the pristine wilderness has the power to soothe. Nature in such a wild is gentle—as yielding as the capacity of your own soul to absorb contentment.

Prove these things to yourself and you will have tuned in on the stimulus that gave your earliest ancestor his inspiration to achieve.

His life stream and his university exist unto this very day! You are proof of the former and you witness survival of the latter—in the great outdoors! He learned from the flight of the birds; the moss on a tree; the tree itself and the verdant bramble beneath its branches; the calling of the wild to the wild; the searing, withering penetration of a bleaching sun, now and again erased by rain; the majestic solemnity of night—(often the beginning and the end of life); and the awesome fullness of the dawn, another day which came from whence he knew not.

No matter your gold, you cannot count yourself rich if you haven't learned that understanding doesn't come from the reading of books.

You have not lived unless you've seen Wellsboro's Grand Canyon; and you'll NEVER know how to count a million billion until you've discovered the secret of serenity! Could YOU face the ghost of Mintolonkwee at midnight?

RESTRICTIONS REMOVED TEMPORARILY ON CERTAIN FISH SPECIES BY FISH COMMISSION

Based upon a diligent and thorough study most expedient and to the best interest of the fishermen of the state, the Pennsylvania Fish Commission, upon recommendation of its chief biologist, announces a temporary liberalization of fishing for many species of fish during the 1954 season.

All restrictions for the taking of white bass, rock bass, sunfish, blue gills, catfish, suckers, fall fish, carp, and eels have been lifted. The only requirement will be that fishermen 16 years of age and over must be licensed and use legal devices. This action is in line with sound fish management and will be strictly an experiment during the year 1954. The results will determine whether or not liberalized fishing for these species will be made permanent.

OPERATION MUSKELLUNGE

(From page 6)

about a third of the fry were planted in Pymatuning Lake. The remaining fry were distributed evenly between a pond at Union City and one at the Linesville Hatchery in Crawford County where they were reared and held until early October. At this time the ponds were drained, the crop of young muskellunge harvested and planted in Pymatuning Lake. A few muskellunge fry were reared in aquaria at the Fishery Laboratory at Bellefonte for observation purposes and here records are being kept on their general behavior under artificial conditions.

It appears that the key to successful muskellunge culture in ponds lies in providing enough live food for these growing fish. Muskellunge fry feed for only a short period on plankton organisms such as Daphnia. Thereafter their appetites demand small fish such as sucker fry and eventually

PENNSYLVANIA ANGLER

larger fish of almost any type. Added to its voracious appetite is the fact that the growing musky is cannibalistic—which further complicates the food problem. It has been found that a young muskellunge will consume several times its own weight in twenty-four hours. Thus if sufficient food of the right size is not available the inevitable happens—they eat their own brothers and sisters.

Pymatuning Lake was selected for the original stocking experiment since muskellunge already occur, to a limited extent, in this water system and because favorable habitat for this species was present in the lake. Future plans include plantings of muskellunge in other suitable waters of the state.

Because of its great size and fighting qualities the muskellunge is a favorite with many sportsmen. It has a high rating also with fishery biologists since it feeds on other fish species the numbers of which often need reduction.

The Fish Commission plans to continue and expand facilities for muskellunge propagation. Equally as important will be research on the best methods for muskellunge culture and on the habits, preferred habitats and general management of this species.

NEW FACE FOR THE OLD LEHIGH

(From page 11)

Lehigh River Restoration Association, these clubs withdrew their applications and joined in with the Association.

A total of about seven miles of the canal will be taken over as soon as permission is granted. This is divided into three sections with the various clubs working on the stretch nearest to them. Eventually it is expected that all salvageable portions of the canal will be taken over and put in shape for the fisherman and recreationist.

First, the canal will be cleaned out and the banks cleared, then the breaks filled and a dam built. With pollution abated and the canal filled with fresh clean water, the Fish Commission is expected to stock these rehabilitated portions with pan and game fish.

Not only will the fisherman benefit through his sport but the swimmer, canoeist and nature lover will also receive uncounted benefits. The small towns and boroughs through which the canal meanders, will have, instead of

a weed and junk-choked gash in the ground, a clean flowing stream of water suitable for a municipal park and recreational area.

The Lehigh River, flowing down from the hard coal fields, used to rival the Schuylkill in its inkiness. But with the coal anti-pollution laws being enforced, engineers estimate the Lehigh will be cleared of nearly all its residue within the next five years.

Experimental planting of wild rice to re-establish the Lehigh as a good "fly-away" for wild ducks has been successful. It has been reported that a number of birds had been sighted in the area where the wild rice was recently sown.

In the old days thousands of ducks made the Lehigh a stop over in their migration. A goodly number of them never completed their trip, ending up in the family pot instead.

Another experiment to be tried in the Lehigh River will be the stocking of blue catfish from the Susquehanna. These fish are more hardy than the black species and should provide good fishing until the river is completely free of pollution and livable for other species.

A request will be made by the Association to the State Department of Health to make a complete survey of the river similar to the ones made on the Schuylkill and the Juniata. Once the river is declared a potential clean stream by the State Health Department, then the abatement of industrial and municipal pollution can be made in earnest.

The Lehigh has always been known as a bass stream and there are stretches today where they can still be caught. Blue gills, perch and catfish that have survived the gross pollution of the past are coming back in appreciable numbers.

Allentown, the largest city on the river, is now talking about reconditioning their riverside park as a result of the forming of the Association. It wasn't too many years ago the park was the starting point for scull races and boat regattas as well as a favorite vacation place. Bethlehem, the next town downstream, used to run steamboat excursions to the numerous islands that dot the river.

To date, assistance, in the form of technical advice has been given the Association by INCODEL, the Lehigh Valley Flood Control Council, Pennsylvania Fish Commission, Pennsylvania Department of Health and Professor Trembley of Lehigh University.

The newspapers of the Valley have been most cooperative and helpful in publicizing the program and aims of the Association.

It's an ambitious program the Lehigh River Restoration Association has taken on but with the sportsmen, industries and municipalities in back of them they can't fail. The results will allow the present-day youth to enjoy some of the pleasures which their parents and grandparents can still recall.

LITTERBUGS CLUTTER- BUGS-VANDALS

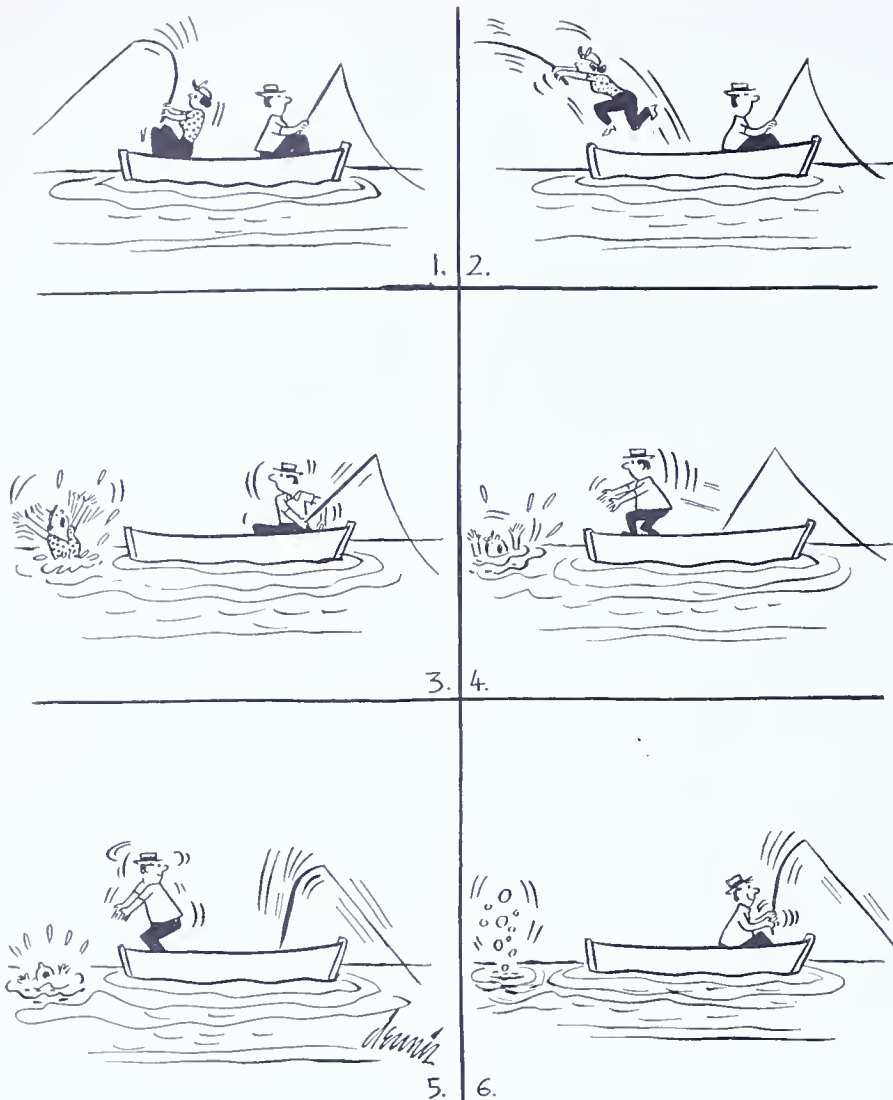
(From page 10)

George-do-it attitudes are always in pronounced evidence.

Vandalism usually displays one of the more vicious facets, while lack of tidiness and related proofs of carelessness show up a little less shockingly in the form of smeared-up picnic tables and benches; mealtime refuse tossed to land where it may; etc. Very often a non-supervised area turns out to be an overwhelming favorite with outdoor enthusiasts. But all too frequently it falls victim to the careless element—vegetation is trod upon excessively in one spot; where lunch cloths are spread there's the inevitable aftermath of waste left for the next visitor to clean up; and finally the area becomes a bare, smelly place that ceases to attract anybody and actually becomes a malignant eyesore to every passer-by.

The alarming aspect in the behavior of those who misuse pleasure facilities set up by man and God is the fact that such misuse is on the increase and has been since the end of World War II. Newton B. Drury, officially connected with California's Division of Beaches and Parks, was much concerned over careless and openly atrocious attitudes when he recently pointed out the need for a better system of patrol to offset the "growing disregard for public property on the part of those who visit and use the parks."

I wonder if there isn't an urgent need for something that will effectively go beyond the limits of mere patrol. Obviously there's a prodigious need for education that will awaken a crusade against the evils of reckless and unjust disregard for the sensitivity, rights, convictions, and fair-play scruples of others who frequently must give up



their own outdoor pleasures because of bad habits practiced by thoughtless "squares" too little to be big enough to clean up their own messes. And along with that is the parallel need for classroom instruction pointing out with indelible emphasis the dangers attached to the wretched, purposeless acts of those who commit outright vandalism.

Usually the *litterbug* is thought of as an individual or a family group. This is not true, for they sometimes operate in multiple units of several hundred per party. The scene may be a beach, a shady grove, or a park set in floral loveliness. But after a hilarious interval of eating and drinking the spot is transformed into a dumping ground for everything from beer cans and bottles to melon rinds and paper plates—this in open disregard of the convenient provision of garbage containers and trash boxes. I have figures on one incident that involved so much trash that the sum of nearly \$150 in State funds was necessary for the clean-up labor! Ironically, any outstanding

scenic spot, because of its wealth of beauty, always carries the seeds of its own violation or even utter destruction!

The *litterbug* and the vandal operate without measurable limitation irrespective of locale. The place may be a cozy-cool roadside grove; or it may possess the venerable charm of historic heritage. In either event the vandal may destroy without visible provocation; and the *litterbug* will defiantly cling to habits which make him a welcome-just-once visitor.

When people enjoy the use of outdoor tables and then get up and wreck them, or when they bring about partial destruction of shelters set up for their own use, then one is tempted to go along with the old saw about the world going to the dogs. But fortunately the ill-bred destroyers are far in the minority. When you see a signboard or other marker shot full of holes, you can know that thousands of people probably passed the sign before one crackpot or a group of them, made a

"brave" decision to riddle it with lead.

In some parks and related areas, the public is provided with a "whittling log." Jack knife enthusiasts can give vent to their ambitions by cutting initials and figures into the log provided especially for that purpose. The log becomes sort of a "guest book," and surrounding timber escapes the busy blades. And of course many public recreation areas have targets for both marksmen and archers. But these usually must be financed and supplied under the planning of a private sponsoring committee. But in spite of all provisions, the encroachment of the menace of abuse remains a problem unexplained and unsolved.

Little wonder, then, that Conrad L. Wirth, Director of the National Park Service, recently said: "Not more than ten per cent of our park visitors have been conditioned by the training and experiences of childhood and youth and maturity to obtain the full meaning and resulting enjoyment out of the masterpieces of nature that have been placed in our charge. . . . This is a bold indictment. . . . I tell you these things not to ridicule these people; I feel deeply concerned for them. They need help. Some people just do not stop to think. . . . I dare say that those who are littering up the back country are people who travel the trails just so they can say they did it, at no matter what cost to the looks of the face of the land! I suspect they feel it is the thing to do because others have done it. . . ."

The Director, this year, also brought up this question: "How can we best train people in the courtesies of park etiquette?" That question struck a chord of particular significance in me, for I echoed the same query when, upon driving across more than two hundred miles of Pennsylvania countryside, I counted dozens of roadside trash piles and tin-can-and-glass-bottle dumps. Even the private property owners have been compelled to post signs along their frontage. "DO NOT DUMP GARBAGE HERE" — "TAKE YOUR TRASH TO CITY DUMPS"—these and several others I saw, one of which, unhappily, is within two miles of my home!

Seeing these things, I could not help thinking to myself: Visitors to park areas certainly need many hard-driving lessons in outdoor etiquette, but these trash-scattering culprits need the pressure of lecture, publicity, probation, and perhaps even penalty with a real sting. For in most instances a

beautiful premise is chosen as a trash-heap plot—a little square of green surrounded by laurel; a hideaway niche watched over by singing evergreens; or maybe a just-off-the-road dell where tea berries show red sides and sly grousé drum by a creekside. When I see these pastoral wonderlands defiled by inconceivable abuses, I'm usually tempted to indulge in the idiom of the bee-bop crowd with something like: "Dig the sad vacuum that Square's stuck with." Or, perhaps I think of Lord Chesterfield's dramatic:

Wisdom here is little seen,
But folly's at full length!

Where millions of people go each year—Federal and State parks, etc.—the plan is being considered by some officials whereby buffer areas would be provided to hold back the flood of humanity and thus protect the more outstanding sections of striking grandeur. Some responsible authorities have expressed their belief that facilities are in many cases too good; trails and roads are too elaborate; concessioners have provided too many kinds of entertainment and too much service that comes to be associated with inter-urban indifferences. Be these claims true or false, areas that are a delight to many fail to inspire good behavior in a few, and this minority regularly insists on doing things that cause local and government reports to carry such terms as: "Adverse use," "Conveniences abused," "Undesirable practices," "Protection facilities inadequate," "Wrong interpretation of area's purpose by group hindering mass participation in normal activities. . . ."

Those who kill game or take fish out of season are openly branded as thieves by a number of national publications issued for sportsmen. That's strong talk, but it's *true* and *right* talk. By the

same token the vandal and the *litter-bug* needs the fearless and open examination of his unpleasant and all too often, vicious habits. If followers of the habit want to abandon their ugly practices the remedy is simple. Cultivate a steadfast conviction that there's only one code to live by outdoors: Render to all property the same treatment you'd give your own and then, as a challenge, multiply that care by the highest figure your sound reasoning will permit. And remember, too, that the natural artwork all around you, summer and winter, is never in a more depraved state than when *you* blot the scenery with refuse and disfigure useful objects in a manner that civilization should have risen above long, long ago.

FERRY DAYS ON PENN'S RIVER

(From page 16)

was established for the accommodation of travelers. Later others were established on this river. The Pennypack ferry and McConkey's ferry at Taylorsville were early ones. Here Washington staged his historic crossing of the river which led to the ultimate defeat of the British. Today a bridge provides easy transport over the river at this point. Travelers bound for Easton must pass by the bridge and go on to New Hope, Coryell's Ferry of Revolutionary days. Washington gathered all the available ferry boats and used them for his famous crossing.

Back in 1753 Thomas Penn granted John Harris the right to erect a ferry across the Susquehanna and from the

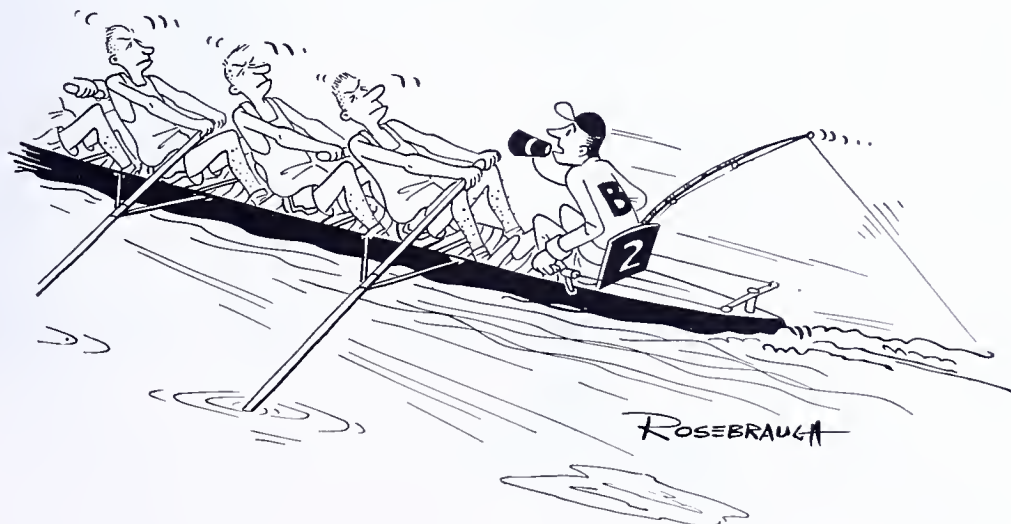
beginning it became known as Harris's Ferry. The settlement that grew up near this site was known by this name and became the nucleus of the present capital city of Harrisburg! Those who traveled on the road to Harris's Ferry spoke of the place as "Designed by nature for the metropolis of this independent state." In 1810 the prophecy was fulfilled when the state capitol was established at Harrisburg.

The early ferry boats were primitive affairs, a far cry from the ferries that operate on the major rivers throughout the nation today, hauling thousands of passengers as well as automobiles and other cargo on one trip. Indeed, they were a far cry from the sleek, shining row boats that skim effortlessly over these waterways. Even until the turn of the twentieth century these boats consisted simply of a large flat built of hewn pine logs and fastened together with wooden pins. They measured roughly 20 to 30 feet in length and 10 to 12 feet wide, sufficient size to carry a yoke of oxen and a loaded cart. The sides were slightly higher than a foot, made of timber hewn thin and slanted at opposite ends.

Early models had long oars or sweeps which propelled them slowly across the rivers. It was not until some years later that ferry service was well established with steel cables stretched across the stream, literally harnessing the power of the current in propelling the barges.

Running freely on the steel cable was a large pulley from which dangled cables, were connected to the opposite ends of the flat. When preparing for a trip, the cable facing the far shore was shortened, the other lengthened from the boat. After poling the boat out into the water, the current pushed the craft across; much like present sailboats tack into the wind. This method was efficient, especially in times of high water. A strong current such as found in the Susquehanna could push a ferry across on its cable in roughly four to five minutes. It fairly breezed across! Being crude barges, they naturally filled with a good deal of water, but like a raft they would float and carry a sizeable load.

How awkward it must have been to drive a rickety old buckboard down the dusty road to the ferry landing. There, on shore, the bell was tolled to signal the ferryman that passengers were awaiting. Business was not always steady so ferrymen spent the moments between trips and entire afternoons fishing. It was even common for them to troll a line from the barge as it



piloted the waterway and for the ferry-men to pay more attention to the landing of a large fish than to the safe landing of the passengers.

Later years found these ferrymen conducting other business on the side. Barbering, blacksmithing, dentistry and marketing fish were some of their other trades. Indeed, it was possible to drive a wagon down to the ferry, have the horses' shoes checked, obtain a makeshift haircut and purchase a goodly number of freshly caught fish from the captain during your short visit with him as he ferried you across the river.

Early records of town meetings record the fares for passage on these barges. Fares ranged from one penny for a lone man, three pennies for a man and horse, to 10-cents for a horse and cart loaded with parcels. Winter found the fares slightly higher than in summer though when the streams froze, the boats could no longer operate and the travelers chanced the ice as they trotted across.

At the ferry at Crown Inn, provisions were made for free passage of travelers who were bound for a grist mill at Bethlehem providing they were accompanied with a specified minimum amount of grain and all others who were on their way to church "providing they did not come for the purpose of transacting business or carry parcels." This ferry was used extensively even after 1799 when the first bridge was built here. It also played a large role in shad fishing. In the spring of 1768 Gov. John Penn visited the river at this ferry to witness the taking of 644 shad. This was by no means a record for in 1778, 8077 shad were caught in less than 10-days.

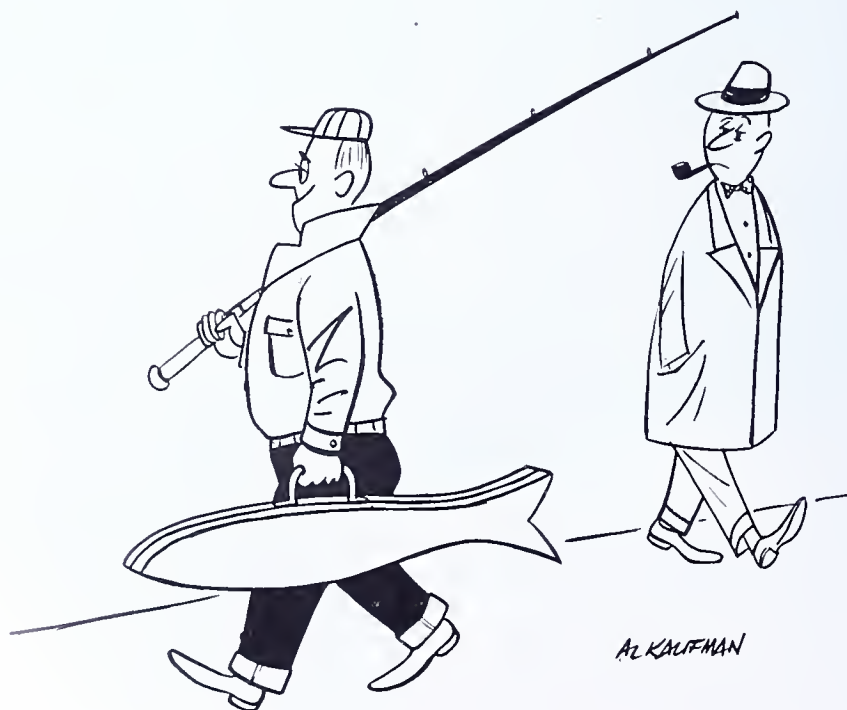
Practically all of the towns along the shores of the Susquehanna had ferries in operation for many years. Ferries were established at Meshoppen, Wilkes-Barre, Shickshinny, Wapwallopen, Nescopeck, Millersburg, Columbia and so on down to the Chesapeake. At a town meeting held at Wilkes-Barre in the year 1773, Parshall Terry, whose land bounded the river, was granted the right to operate a boating service and it became known as Terry's ferry. It was in operation during the Revolution and afforded communication with the fort at Forty Fort and those living in the upper settlements on the east side of the Susquehanna. The last man to operate it was Thomas Reese. It was said this ferry netted the operators from \$25 to \$60 annually.

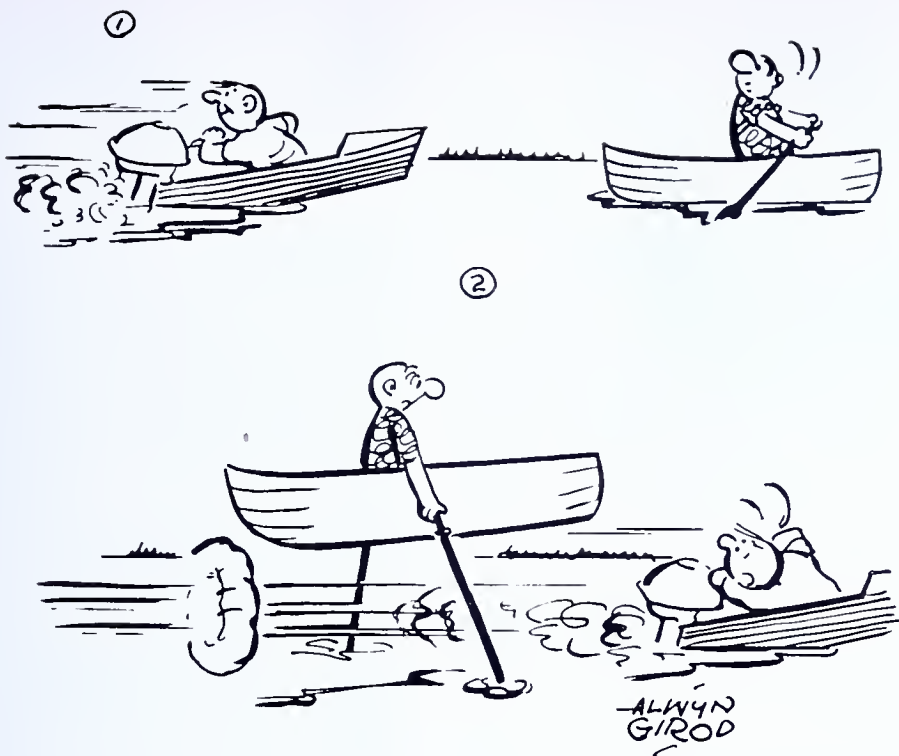
At Columbia the Wright family settled and established a ferry in 1726. It became known as Wright's Ferry and was the most important crossing point on the mile wide Susquehanna. The family name is preserved by the town of Wrightsville on the west side of the river. It was this ferry that was termed "the key to the west." Here all news of the West was authoritatively handed over to the government officials. It was the chief watch tower on the river of Indian movements. It was the place where expeditions west made their first rally and base for operating supplies. It was the edge of the frontier where horse thieves of the southwest found sufficient officers of the law to resist and arrest them. It was the place where a wealth of skins and furs were unloaded when brought from the virgin forests, where the Indians were cheated after being treated to fire water. And it was the place where the early fishermen gathered to fish for shad, suckers and eels.

All was not frolic at the ferry sites. There were moments of hardship, of frightening experiences and even of disastrous events. As the raging river pounded at the flimsy sideboards and lurched it about, horses became unruly, panicky, pulling wagon and wares into the water, smashing the barge and often drowning the boatman and passengers in the raging current. On the other hand there were moments of gaiety. Neighbors from opposite shores and towns gathered at the ferry sight to be carried across-stream to join others in parties and

picnics. There were chances to make new friends swimming, fishing and hear the latest news and happenings of far away towns. Ferries may have been crudely built affairs, but they are deeply steeped in history!

Now remembered only by the older generation and totally unknown to the youngsters of today, the ferries have passed into history with other forgotten industries. Though few parts of the boats or their operating bases are in existence today for anglers to find, older folks can still point out the landing sites of these early means of river passage. They can find the old lanes that lead down to the river's edge where the ferry came to shore dropping the endboards to allow passage of horse teams and carts. Some, perhaps, can recall making trips across the raging streams and traveling over old trails from one ferry barge to another. But one thing is certain, the shorelines remain where the boats docked and took on passengers. And here fishermen, many unknowingly, visit, sitting patiently on shore with baited line in hand, waiting for a bass, walleye or sucker to grab the lure. In those peaceful quiet moments, when only the chirping song of the catbird, the croaking of a frog or the murmuring of the river can be heard one can pause to meditate the historical events that have been staged here. Shouting of cursing, robust men battling against the raging torrents, commands given to teams to climb aboard the old pine flats, the tingling of the bell in calling to the boatman,





the creaking of oars and cable as the boat strained to leave shore, the singing of young lads and maids on warm summer evenings can be heard and visualized by stretching the imagination when fishing along the shores.

These old ferries plied the same streams and rivers fishermen visit today. Now shiny new bridges with glistening steel girders and concrete piers gracefully span the streams and brightly painted boats, powered with sails and motors race across the rivers replace the ferry boats of yesteryear which certainly have a storied niche in the romance of transportation and saga of Pennsylvania's history.

LESS TOIL WITH FOIL

(From page 13)

hole with butter and replace half of the cone. Or still easier—just wrap the potato in a strip of bacon.

If you like dessert, cut the core from a large cooking apple. Fill with maple syrup or brown sugar. Wrap in foil and deposit it on the fire for five minutes.

Perhaps you're going trout fishing or something like that—you'll be wading all day, so you're against carrying a lot of extras. And you'd rather not

walk back to the car if you can avoid it. Sandwiches? Well—maybe—if you do it like Charlie.

Prepare your hamburgers the night before. Shape the patties, add an onion and a slice of cheese if you like; then wrap them in foil. Keep the hamburgers in the refrigerator over night. In the morning, along with a couple of fresh buns, they will weigh very little or take up little space in your creel or fishing vest. At noon, just build a fire. Place the hamburgers on the fire for from five to ten minutes, depending on how well done you like them.

There are still other applications to foil cooking. You can even fry things. Here's how: Take a double or triple thickness of foil about a foot or less square. Bend the sides upward in the shape of a square pan. The sides should be about an inch high. Now you need a very flat rock or slab—or a thin sheet of metal nearly the size of the foil pan. Set it on the fire, add grease and fry whatever you have in mind.

I've even seen Charlie make soup and boil crayfish tails in pots made from foil. The pots were shaped by hand or molded around the hood of an outboard motor. Of course it was necessary to place the "pot" carefully on the fire and to support it with strategically placed rocks all around. The fire would be maintained, then, in a circle around the outside.

Foil is even helpful in broiling. After a steak or a fish has been seared on

the outside, it can be wrapped in foil and placed on the fire. An airtight package isn't essential here, but it may assist in retaining juices of dry pieces of meat.

Foil comes in convenient packages—or rather in rolls twelve inches wide by fifty feet long. It's inexpensive, and of course, it's light in weight. If the regular roll is too bulky or too heavy, you can tear off several sheets and fold them to fit in your pockets or in your hat band. Or you can carry strips of bacon, salt, and such seasoning as that right in a sheet that you will use for cooking later on. The possibilities are unlimited.

Campers are finding that foil is valuable in storing certain foods while in the field. Aluminum has many good insulating qualities and in the course of a long trip, may keep many perishables from spoiling.

Cooking with foil has even more than delicious meals to recommend it. Late on the evening of a float trip, that included frequent carries over windfalls and dragging the boat through shallow riffles, I had considerable proof.

Both Charlie and I were tired and hungry. It was even an effort to build a fire. And after a session with a heap of foil-cooked, channel cat fillets, I didn't feel like moving a muscle.

"The best thing about this foil cooking," I told Charlie, "No dishes to wash."

RIVER OF MOODS

(From page 19)

site shore to cast our bait upstream and down, toward the near shore and again toward the middle of the river.

Jack was using his casting rod and had a three-inch hellgrammite on his hook when a bass took the bait 12 or 15 feet from the boat and started swimming slowly toward the far shore. Jack permitted him to take line from his reel for several seconds and then jerked the tip of his casting rod sharply upward.

Then the fun began. The bass evidently resented the effort to divert him from the direction he wished to go and struggled with every ounce of his strength to keep away from the boat. Jack's steel rod bent almost double

with the strain as he cranked his level-winding reel.

"I really have hold of something," remarked Jack, who isn't one to get excited to such an extent it is apparent in his voice and actions. But I could tell by the tense look on his face that he wanted to land this one in the worst kind of way.

Jack had his powerful fish half way to the boat when it broke water and we saw for the first time what a beautiful bass it was. It was quite a struggle to get the fighting fish to the side of the boat where his bronze back shone in the sun as his dorsal fin cut the water.

"What the heck am I going to do with him?" Jack asked, more of himself than of me. "We don't have a net and I'm not too certain I can get him into the boat without one. Well, here goes," and he reached out to grasp his leader just above the snell of the hook and with a quick jerk dropped the madly flopping bass into the boat.

We measured him as best we could and decided he was a good foot and a half in length. It was not until several hours later, after we had reached my home in South Williamsport, that we weighed him and learned he was a 3½-pounder, even after he had dried out to some extent on the long, hot journey from the North Branch to Lycoming County.

Exactly a week to the day after that Jack and I tried it again at the North Branch. This time we found the river high and off-color and probably wouldn't even have put our rods together if it hadn't been that we had traveled 65 miles to fish.

And, as it developed, we had our

trip and a lot of boat-rowing exercise for nothing. We didn't have the motor this time so accepted one of Mr. Sterling's smaller boats when he offered us its use. We rowed upstream, keeping as close to the north shore as possible to avoid the swift current of the swollen river.

Even in the comparative quiet of the shoreline we had to pull with all our strength to make headway. When we had traveled a half mile or so upstream we cut diagonally across toward the south shore and despite our utmost efforts were carried downstream almost directly opposite the point from which we had set out before getting across.

We tried fishing the eddies and protected bits of shoreline, for we couldn't keep our hooks off the surface of the water when our lines were in the current.

Jack and I baited with all the natural bait we had and tried just about every artificial lure we possessed without success, meanwhile dreading that long, hard pull to get back to the boat anchorage from which we had started.

We hadn't the slightest luck that dismal afternoon, getting only a few nibbles in one or two of the eddies.

The long row back was every bit as strenuous as we anticipated and we thanked our lucky stars we were wise enough to start early for it was evening by the time we had the Sterling rowboat secured to its anchor chain.

I vowed I'd never again take that 65-mile drive to the North Branch without first inquiring if the river was in fishable condition. And indeed it

isn't necessary to make the journey blindly, for two of the sporting goods dealers in Williamsport maintain a daily river record service for anglers who want to know river conditions before setting out for the popular stream.

I did not accompany Jack and his fishing pal, Kelley, when they visited the North Branch some time after that, and I was disappointed that I didn't, for they were fortunate enough to find the temperamental stream in one of its most pleasant moods.

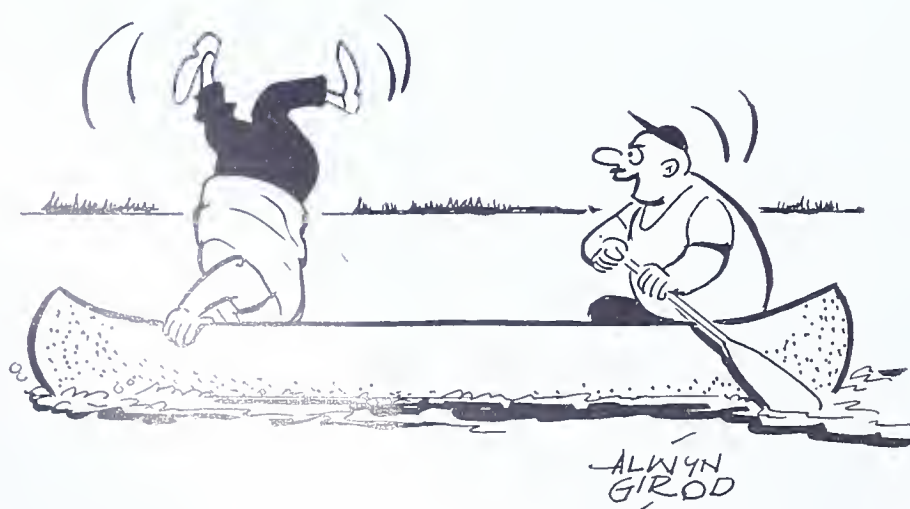
They returned late in the evening, each with catches of beautiful fish—bass and walleyes. They didn't have a fish less than 14 inches long, and they told me they had caught and carefully returned to the water fully a half hundred legal-sized fish as they rode the bosom of the North Branch that particular summer afternoon.

However, nice as it was, their catch did not compare with one I saw about the same time which had been made in the same branch of the Susquehanna by Frank (Chalky) Bauder, the well known South Williamsport taxidermist, who prefers night fishing with bass bugs when he spends his annual week or two on the North Branch.

Chalky's fish were huge, every one of them. He showed me the bass bug which had lured virtually all of them as he cast it toward shore while wading the river at night. The bug was mutilated so much it could not be used again, virtually all of the paint being scraped from it by the teeth of the big fish which had struck it and its deer-hair adornment was straggly and bedraggled.

In the autumn just ending fishing was exceptionally good on the North Branch, my friend Grover Miller told me. Almost every evening, he said, he could stand on the shore just over the embankment from his summer home and haul one big bass and salmon after another from the chilly water.

Walleyes were especially voracious during those autumn evenings for there had been frosts to kill off insect life and the fish were feeding up in preparation for the long winter just ahead.



"OK, ELMER, you can sit down now—the portage was over an hour ago!"

**A YEAR'S READING
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PENNSYLVANIA ANGLER

TERRAPIN HUNTING

(From page 20)

is imposed. There is no law governing minimum size. However it is impractical to take terrapin that measure smaller than seven inches from front to back of the shell. Smaller red-legs are difficult to clean and yield little meat.

The hunter of terrapin must wear boots or waders, and be equipped with a "sounding rod." The rods are home-made, consisting of a length of broom handle tipped with a metal spike about two feet long. The purpose of the rod is to sound for the terrapin by thrusting the spike end into the likely looking places that they might choose to inhabit while in their semi-dormant state during the winter months. These places vary according to the stream. In a very rocky stream, they can be found lying on the bottom looking very much like the moss-covered rocks that surround them, so that it takes keen eyesight to detect the oval outline. In less rocky streams they are apt to be buried under a pile of dead leaves, or in the mud or sand.

The metal spike, on contact with a rock, will emit a definite metallic "click," but when a terrapin is located and the spike hits the shell, the sound is likened to that of metal hitting wood. Occasionally the spike will hit a piece of submerged wood, or a tin can, and the hunter will think he has found a terrapin, that is until he "roots" the object out of its bed with the sounding rod. Terrapin that have been sounded are usually retrieved by pushing them along the stream-bed, with a foot, toward shallow water where they are easily lifted out.

The ideal time to hunt "red legs" is when the water is low or normal. High, swift water greatly hinders the hunter not only in his progress in walking against the current but in his ability to spot the choice resting places of the terrapin. They avoid the fast water as much as possible, consequently, most of the time is spent probing and looking along the sides of the stream where the current is not too swift.

Terrapin are peculiar animals, or rather reptiles. They are amphibious



"OK—OK,—so I did make a few goofoffs in putting the boat kit together!"

choosing to live most of their life in water. Assuming a semi-dormant state when the first freezing weather arrives, they will burrow into the mud or sand and remain there until forced to seek food. Their diet consists mostly of roots, stream vegetation and insects. Contrary to opinion, they do not include fish in their meals, except in some rare circumstances.

Propagation of the species occurs when mating takes place in the fall and the female deposits her eggs in the sand in late May or early June. The warmth of the sun hatches the eggs in about 90 days and the young appear in September. Thus the cycle is completed, and time remains the only factor that separates the hunted from the hunter.

Terrapin hunting is an interesting and pleasant fill-in during the time when deer hunting season ends and trout season begins. If you are looking for some outdoor activity to indulge in during this "lull" period, and one that borders on the unusual, equip yourself with a sounding rod, a pair of boots and a fishing license and strike out for some silvery stream on a sunny afternoon. Try it sometime.

WHEELIE THE WALLEYE

(From page 21)

to any level you want it traveling up from the bottom merely by changing

the length of line down to the sinker. This will more readily ascertain the depth at which the walleye are feeding on any given day.

Minnow fishing for walleye is probably the most successful type of fishing for this game fish, especially late in the season. Here, too, it must be of different types to accommodate the moods of the fish. In lake fishing the use of a boat enhances the possibilities of success and drift fishing with the wind pushing the craft along often brings surprising action and gratifying results. Split shot of effective weight attached about a foot above the minnow to your leadered line keeps the bait near the bottom and is a necessity. The faster the wind pushes the boat, the greater amount of lead must be used to keep the bait down. Both here and in river fishing, hooking the minnow back of the dorsal fin causes it to struggle more erratically against a line pulled by current or drifting boat which both lessens the possibility of snags and gives an action mighty attractive to the walleye. Try it.

In stream fishing the walleye are most often found in deep holes with a riffle leading into a circling hole with shoal on one side and depth on other. When they hit minnows, 98 per cent of the time the walleye will travel up-stream. Furthermore, they seem to haggle with the bait and mouth it, giving short, shaking, snappy jerks, rather than the usual long runs for which bass are especially famous. Keeping exact tab on the walleye which has your bait to insure just where he is in the hole or riffle becomes somewhat of a problem especially at the time when you want to set your hook,

but if you feed line so that the wall-eye must take it from your fingers, you'll always have a sufficiently taut line and provide more opportunity for setting the hook correctly. Don't keep the line too taut, however, for this is a cat and mouse game with the wall-eye playing cat to the minnow, and the fisherman having to learn how to play cat most successfully to the wall-eye.

Fishing a riffled hole is somewhat of a science, too. Sometimes they'll be at the head of the hole and at other times at the lower end. Rarely do the walleye seem to be feeding directly in the center of the hole, so be imaginative in your fishing by alternating your casts with a thorough search of all parts of the riffle near the head of the hole, at its base, in deep water and even in the shoals. Though they are not often found in the shoals, again I know of a stupendous walleye caught unexpectedly in the shallows. A 2/0 or even 3/0 Eagle Claw hook is most effective for the walleye with your minnow for its larger hard jaw.

With his vicious looking teeth a larger walleye is somewhat of a chore to pull in especially if the landing area is awkward or if fishing is done from a boat. Many fishermen suggest that grabbing the fish with thumb and forefinger in the eyes paralyzes it momentarily and permits the use of the other hand for leverage to hoist it to a safe place.

The only undisputable statement that we can make about walleye is that it is an incomparable food fish. Its meat is firm and sweet and is unexcelled as table fare. Frying in deep, hot fat with the fish breaded with fresh cracker crumbs from crackers crushed under a rolling pin and similarly baking fillets of the breaded fish with ample supplies of butter melting on it makes the mouth water when you get a sniff of the culinary guiles gone through by a particularly adept feminine hand. You might try your hand at the simple but most effective cooking—that is, if you've fooled this funny critter by first catching him.

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CONSERVE OUR TREES!

To Improve Our Fishing

By Ellen A. Dietrich

SON! What in the world are you doing?" demanded anglerette Emma Watson, as she breathlessly approached her ten-year-old pride and joy.

Unlike his mother and dad, but like most other ten-year-olds, Jimmie was an impatient angler. If he didn't catch a trout within a very few minutes after he commenced to fish, his thoughts generally turned to other activities of the out-of-doors. Wood chopping held a peculiar fascination for the boy, as it does for most youngsters of his age; and, to complete the picture, his father's axe drew strongly upon his imagination.

The day was a chilly typical part of early spring. Jimmie had promised to remain within sight of either mother or dad at all times, in accordance with Emma and Arlie Watson's one inflexible rule for their son's stream behaviour. For some time that afternoon, therefore, the boy had contented himself with running back and forth between his parents, telling each of the other's nibble, strike, bite or catch, as the trio slowly moved downstream.

Tiring of this self-imposed style of umpiring, however, Jimmie had finally made his way upstream to a plantation of pines.

There he stood—when his mother finally came upon him—father's axe in hand and all the guilt of the world in his expression, as our anglerette viewed with consternation the fallen tree at which her son had been hacking.

"Why son! You must never destroy a tree!"

Emma was barely able to control her voice. She knew that this was no time for hysterical outbursts. But she also knew this was an occasion for some appropriate thought and effective action. Her offspring had not only broken a strict family rule by straying away in the woods. Worse than that, here he was, at his tender age, in the act of chopping down one of the very evergreens that his mother and dad had helped to plant as part of a conservation program several years before Jimmie was born.

"Aw, shucks. I wanted to surprise Dad with some wood for our fire. He

said he was going to build one after while if we caught some fish. And I saw you and him catch four already."

"But you didn't ask permission, son. You know very well that you aren't allowed to wander off the trail between your father and me while we are fishing. Besides, your father never cuts down *live* trees for firewood. There's plenty of dead wood lying around," admonished our anglerette.

"But, mother, this is a dead tree," protested the boy, touching a brittle lower branch to prove his point. "Just look at all the dead, brown branches!"

"Brown and dead the *lower* branches are, to be sure my son. But come out from under those pines and just look at their tops. They were planted for timber, as well as to prevent soil erosion that had occurred here for years before the trees were placed in this huge gulley."

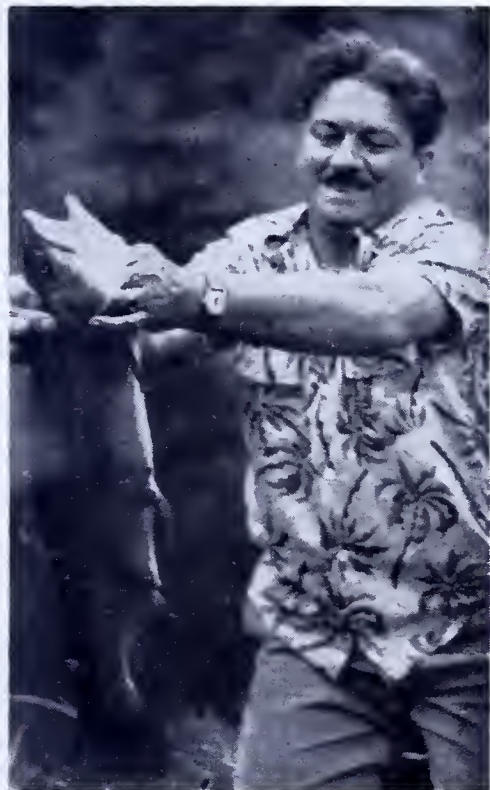
Obviously ashamed and hurt by the implication that he didn't know the difference between a living tree and one that was dead or dying, Jimmie persisted: "But if it's a real, live tree, why does it have so many dead branches?"

Mother and son thereupon went into a conference on planting and growth of trees, especially those planted for timber. Mother explained to her boy that such trees are placed closer together for the very purpose of causing the lower branches to die off as the trees grow tall and strong, thereby making better and more valuable timber when it is ready to be lumbered. Limbless trunks yield knotless boards, was the explanation.

"That stand of evergreens is now fifteen years old," mother continued. "Your dad and I helped the club to plant it before you were born. Some day, perhaps, it will make good wood for some useful purpose. Meanwhile, the roots of the trees are preventing the rain from washing top soil down this large gulley into the creek. The water in the stream below is very much clearer than it was years ago before the trees were planted. These precious trees, therefore, have greatly helped our fishing here."

PENNSYLVANIA ANGLER

The Editor's Angle



Ira Knorr, Fernridge, Pa., caught this beaut of a rainbow trout while fishing Pensyl Creek in the Poconos last season. The fish weighed 6½ pounds, measured 27¾ inches.

Dunkers Association

Art Clark, angler member from Havertown, advises of the organization of a new club in the county. Called the "Dunkers Association," membership is only open to fishermen who have submerged, at least to the hips, (accidentally of course), while questing for freshwater species. President and Chief Dunker is our avid bass angler Charles Stouth, Vice President and Chief Skidder is none other than slippery footed Art Clark. Other members, in poor standing are: Willis Holgren, Dr. Albert Cleveland, Ed Jefferis, Tom Burke, Jack Meehla, Les Ambler, Tom Gallagher, Bill Everman and Shorty Manning. The Club welcomes all anglers who desire enrollment. No dues or attending meetings are necessary, just DUNK up to the hips, at least. Club Motto: "Let us sound out your favorite fishing hole—We get to the bottom of things."—Delaware Co. Field & Stream Club News.

Frank Krebs Dies

Frank H. Krebs, 35, who lived until recently at 5133 Saul street, died in Sacramento, California, September 28. He had undergone an operation in June and due to the serious nature of his ailment he and his wife moved to Sacramento where Mr. Krebs had a brother-in-law who is a doctor.

He was a Chief Petty Officer in the U. S. Navy during World War II and served five years. While serving on the U.S.S. New Mexico his ship was hit twice by Kamikazee planes, the ship losing 132 men on one occasion.

Mr. Krebs was an ardent fisherman and a director of the Holmesburg Fish and Game Protective Association, which he joined in 1939. At the time he moved from Philadelphia he was Chairman of the Fresh Water Fishing Committee and was constantly advising less expert fishermen on ways of fish and what gear to use for various species. He frequently contributed timely fishing articles to this paper, and was especially known for his dry humor and his "true" fishing tales had the zest and humor of the well known fishing stories. During his time in the Navy and as a civilian he had fished most corners of the world.



Dear Editor:

Enclosed is snapshot of two smallmouth bass I caught this season in the Allegheny River at Lock No. 9. The one is 21, the other 19¾ inches long. Both were taken on a plug.

STEVE VALENCIC

Brackenridge, Pa.

Dear Sir:

I am a satisfied subscriber to the ANGLER, and not only because of your fine and informative articles but for your fish bait recipes as well. Three days ago I had never fished for carp before, but as I was on vacation I decided to give it a try. Using Mrs. Amy Edmonds (Pittsburgh, Pa.) carp bait recipe, which I copied from the Angler, I went to Spring Grove, Pa., and fished in the dam there.

Tried it for two afternoons in a row, and could get only a few small ones. Today I tried again and was pleasantly rewarded for my perseverance. I caught one 15", 2 lb. carp, and then one smaller one. Just as I was getting ready to give up and go home, it happened. The reel began to sing merrily, and there was no stopping it.

After about a half hour battle, I landed the carp. It was 25½" long, and weighed 7½ lbs. I landed him using 3 lbs. test leader material.

Thanks again, Mrs. Edmonds. I can personally recommend your recipe now. It definitely made my fishing trip more fruitful. Thanks, too, to the ANGLER for passing along this sort of information, which is always so helpful to all fishermen.

Here's a pix enclosed of my wife holding the fish, after they had been cleaned.

JAMES R. MARKLE, SR.

York, Pa.



Dear Editor:

We understand you had a picture of our boat landing and an article in one of your recent issues. We would very much like to buy one. We are at Vasburg near Tunkhannock. Would appreciate getting this issue.

CHESTER D. HOWLAND

Riverside Farm
Tunkhannock, Pa.

The Editor assumes Mr. Howland refers to the Float Fishing story by Don Shiner in the October 1952 issue. Sent same.

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ONE YEAR—ONE DOLLAR

Fishes of Pennsylvania

By
KEEN BUSS, Fishery Biologist
Pennsylvania Fish Commission

THE CARP

The carp (*Cyprinus carpio*) was originally found in India and China where it traveled westward with civilization. About the middle of the thirteenth century, the range of carp was extended to western continental Europe, but they were not introduced into England until 250 years later.

In 1877, the United States Fish Commission successfully introduced these fish into this country. At this time, 345 carp were placed in ponds near Washington, D. C. It was only two years later, in 1879, that 12,000 young were distributed to individuals in twenty-five states and territories. This was the year of their introduction into Pennsylvania.

The carp was not introduced for its angling qualities but for the purpose of "farming" them as is done in European countries to supplement the protein diet of the people. Because of the prosperity of our nation, this added diet was not necessary and the carp were allowed to revert to the "wild" state where they now abound in many lakes, ponds and streams.

THE CHAIN PICKEREL

The chain pickerel (*Esox niger*) is Pennsylvania's game fish which supplies recreation in both winter and summer. In summer, it is sought after with flashy lures and minnows. In winter, the "tip-up" fishermen with minnows benefit from the gluttonous appetite of this member of the pike family.

Feeding Habits:

Carnivorous; eats fish, small rodents, frogs, snakes and other small terrestrial animals which may fall in the water.

Life History:

They spawn in early spring soon after the ice melts. The eggs are scattered over vegetation usually in shallow water in swampy areas. Six to twelve days are required for the eggs to hatch. After hatching, the fry with yolk sacs attach themselves to vegetation for about a week until the sac is absorbed. When the yolk sac is absorbed, the young develop a voracious appetite which hastens their growth. A length of nine inches has been attained,

Page 1
Form 3526
Rev. 2-49

Read the instructions
on page 2 of this form.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, AND CIRCULATION REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912, AS AMENDED BY THE ACTS OF MARCH 3, 1933, AND JULY 2, 1946 (Title 39, United States Code, Section 233)

Of Pennsylvania Angler published Monthly
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(Name of post office and State where publication has second-class entry)

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Editor <u>George W. Forrest</u>	<u>1339 E. Philadelphia St., York, Pa.</u>
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George W. Forrest
(Signature of editor, publisher, business manager, or owner)

Sworn to and subscribed before me this 25 day of September, 1953

[SEAL]

(My commission expires 9/17, 1955)

under ideal conditions, during the first year. Although a pickerel of 10 lbs. 10 ozs. was on the records, it now has been ascertained that this fish was not the chain pickerel. The largest fish known definitely to be of this species is 6 lbs. 8 ozs.

Distribution in Pennsylvania:

Originally found east of the Allegheny Mountains. The greatest concentration is in the northeastern section of the Commonwealth.

THE LONGNOSE GAR

The family of which the gars are a member is the last remnant of a large group of prehistoric fishes. This family is represented in Pennsylvania by the longnose gar (*Lepisosteus osseus*). Their relatives were, in the distant past, far more numerous and more widely distributed.

The type of sculation, which is thick, interlocking and covered with enamel

similar to that on teeth, is found very frequently on fossil fishes. The toughness of the hide, it has been reputed, has caused it to be used for covering on ornaments, frames of pictures, purses, plow shares and as shields by aborigines.

Feeding Habits:

Carnivorous, they feed mainly on other fishes.

Life History:

The eggs are deposited on submerged vegetation or rocks in May or June. The eggs hatch in about one week depending on the temperature. The eggs of this species are poisonous to humans, pigs and probably other animals. The maximum length of the adults is over five feet.

Distribution in Pennsylvania:

Found in Conneaut Lake and Lake Erie.

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SPINNING - BASIC FLY PATTERNS - WINTER WONDERLAND - ALIBIS

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PENNSYLVANIA ANGLER

VOL. 22, No. 12

DECEMBER, 1953

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THE COVER . . . WINTER NOCTURNE, the stream . . . dark, cold, but still beautiful in contrast with snow and ice.

—ewing galloway photo

ART DRAWINGS, this issue by Bob Cypher and Charles Nagele.



George W. Forrest, Editor

1339 East Philadelphia Street, York, Pa.

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1953 Drought

Seriously Affects

Pennsylvania

Streams

By C. A. French, Executive Director

Pennsylvania Fish Commission

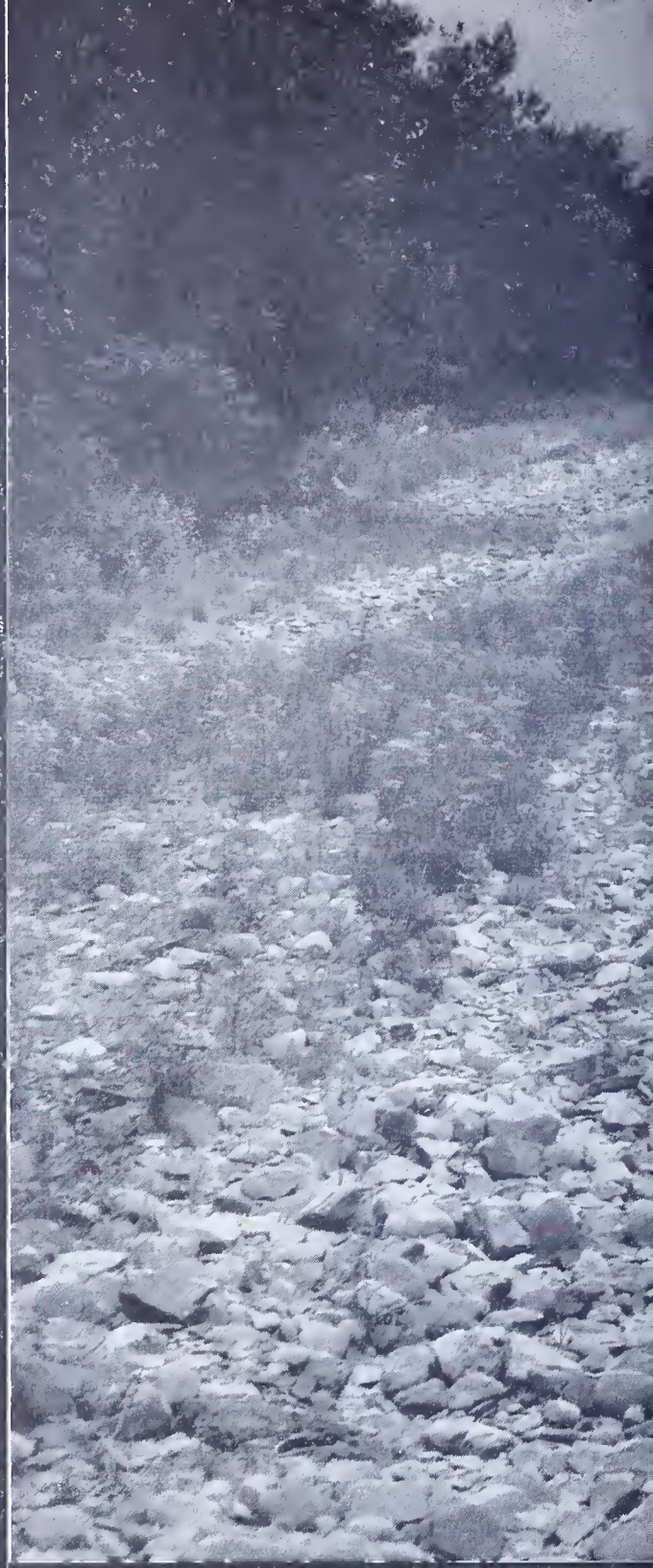
THE continuous lack of rainfall during the past summer and early fall has led to perhaps the most serious drought in the records of the Fish Commission. Fisheries technicians from the Bellefonte Laboratory who have been observing these low water conditions during the past several months report that many small streams are bone dry and that major trout streams in some areas are now in a critical stage. A number of large warm-water streams, normally stocked at this time of the year, were not stocked this fall because of low water. Fortunately, to date the drought has not seriously affected the water supply at any of the state's fish hatcheries.

Young Womans Creek on Route 120 at North Bend, Clinton County, where it empties into the West Branch of the Susquehanna River graphically illustrates effect of drought.

Moore's Run at the last point of stocking is reduced to almost a trickle.

Bailey Run where it empties into the first fork of the Sinnemahoning.

Kettle Creek, high on list of popular trout streams for Pennsylvania anglers, North of Crossfork, Potter County.







**1953 drought seriously affects
Pennsylvania streams
*Continued***

**Bell Run, Potter County, almost
dry, is drought casualty.**



**Allegheny River above Couders-
port, shrunken by the drought,
shows its rocky bed in many
places.**



**First Fork of Sinnemahoning
below Wharton in critical con-
dition. Aquatic organisms upon
which fish feed are lost, a
serious consequence of the
drought.**



THE basic requirement of fish is, of course, *water* and without it fish life is no more possible than life without air would be for man. But fish need more than just water if they are to survive. The fish-food organisms upon which fish rely for staple items of their diet are just as dependent on water as are fish. Thus when a stream twenty feet wide is reduced by drought to a width of only four feet such aquatic organisms as the mayflies, stoneflies, caddis and others may be sharply reduced in numbers. The loss of fish-food organisms is one of the more serious consequences of a drought. In a sense this loss may be considered worse than the loss of fish. In a trout stream, for example, a planting of trout when the stream returns to normal size will restore the fish numbers and provide fishing. But there is no quick method of restoring the insect life of a stream—and some of these organisms require three years to reach maturity.

Thus the effects of a prolonged drought on stream life are drastic and far-reaching and encompass not only harm to the fish itself but to the fish's food and home.

Kettle Creek on Route 144, Clinton County, drastically reduced by lack of rainfall, shows serious stream conditions causing death to fish and fish-food.





By Seth L. Myers

Mr. Myers of Sharon, Pa., is an outdoor writer for the Sharon Herald, his column carried by many newspapers of north-western Pennsylvania. He is currently secretary of the Outdoor Writers Association of America and past-president of Pennsylvania Outdoor Writers Association.

WATER

what

is

it

worth?

WATER—good water, is the very life-blood of the nation, state, city, village,—even the individual farm or lonely homestead. With it at hand, mankind can overcome practically all other losses. Lose it—and mankind cannot exist on this Earth. It may be catalogued as the most valuable of the several natural resources which man claims as his God-given heritage.

Also—there is no question of whether good water must be available for all else on the land. It is an absolute necessity for all wildlife and its habitat. All forms of vegetation must have it. It goes without saying, that all species of fish and forms of aquatic life must have good water for survival. It is an

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integral part of everything on Earth.

Quite likely, you, as the reader of these simple statements, have already decided that nothing has been mentioned with which you are not completely familiar. That is probably true, but how much thought have you given them? Have you ever wondered whether a water problem exists?

Isn't it true, that throughout your lifetime, you have simply taken the water which you use daily, as a matter-of-fact? I wonder whether you have ever estimated the real worth of your available water supply? Or, in common with other humans, have you been content to view it cheaply?

It is without question, the cheapest commodity in the life of man—yet so vital that he could not live without it. Probably, many humans don't reorganize the value of good water until some turn of events finds them without it. The old adage "A fellow never misses the water 'til the well goes dry" is perhaps the real purpose for the writing of this article. It may encourage readers to stop and think about their future water supply.

Good water—is the only kind of any value to man, beast, bird, fish or vegetation. Of those mentioned, only man is responsible for that which is not good water. All water was pure and clean before mankind spoiled it. Polluted water is not only valueless—it is a severe threat to mankind himself. It has caused more damage to everything it serves than most men are willing to admit. Those who are guilty of having destroyed once pure waters, are usually found trying to hide their guilt behind legal statutes which protect them from the wrath of their fellowmen.

The wrath is there when a stream is destroyed. When intentions form for turning that wrath loose they are tempered down by the realization prevailing laws do not warrant violent punishment. If the majority of the people want more severe laws, they must appeal to the lawmakers.

Much progress has been made in the forming and enforcing of laws with which to stop the pollution of public waters. However, there are many of us who are, perhaps, closer to the problem than the majority of the citizenry, who believe tighter laws are needed. Only through an aroused public, will the laws be made more severe, and even more public support will be needed to follow through with strict enforcement of such laws. Otherwise, foolish mankind will continue to destroy water.

During the past summer, when severe drought has resulted in hundreds of small streams and ponds becoming dry, humans have sensed a need for water conservation. Farmers have had to haul water for livestock. Officials, whose duty it is to manage the fish program, have found it necessary where fish were dying from lack of water, to transfer them to deeper waters. Fishermen have found it necessary to find new fishing holes in which to do their fishing. In a great many sections, the drought has been felt by man, beast, waterfowl, fish and vegetation.

Only when that little brook which runs through a farmer's property ceases to flow with good water, does the farmer become alarmed. Instead of preventing its bed from filling with silt and topsoil, he has been content to assume that the water would always be there when needed. It is questionable whether he has ever placed any real value on it. Only when he must haul water, does he realize how much it was worth to him and to what extent its absence cuts the value of his land.

By properly protecting it through soil conservation measures, a farmer can prevent his brook from running dry—but I wonder how many will take a lesson from this most recent drought? To insure that small streams on farm lands continue to serve their purpose, the immediate watersheds need to be well covered with vegetation. Farmers cannot denude the fields around their water source and expect to maintain an even flow of water. Nature's plan is for the trees to regulate natural reservoirs.

During rainy seasons the trees absorb water and hold it until it is breathed off in drought periods. It has been stated in many authoritative reports on the subject, that if there are trees in suitable quantity, they will maintain a slow but constant flow from their underground water storage or bank.

An excellent example of this has been proven on a Mercer County farm in Pennsylvania, where a friend of mine has accomplished an almost unbelievable success with watershed control, in reviving his water supply. Any doubter would do well to view this outstanding project.

During World War II, his spring dried up and of course this eliminated the little brook below it. Without the water, he would be unable to keep live stock. He realized that something had to be done about it. He secured

data on watershed management and made a thorough study of his problem.

Upon learning how the trees control water supplies, he hit on the idea for planting a tree nursery in the fields around the spring. Now, that spring has come back to life, bubbling out more water than before, and once again, the brook meanders over its original streambed. The water was there in its purity, and in abundance right through the recent drought. And, today, the tree nursery is a source of considerable financial income.

One of the important steps to be taken in meeting the alarming problem of future water supply, is to revive in modern man, the independent thinking and initiative of our American forefathers. While it might be pointed out by some, that the early citizens of the country, were wasteful with their natural heritage, it cannot be said "They didn't have confidence in themselves." They never once thought of asking their government to look after their personal needs. We need to revive that attitude now, and our first step in regaining our self-confidence might be to bring our people to a serious accounting for their careless uses and wastes of water.

During the 1953 convention of the Outdoor Writers Association of America, the week of July 19 to 25, in Montana, the subject of top-most concern was about the nation's future water supply. The national organization's 'Water Policy Committee,' headed by Arthur H. Carhart of Denver, came through with what is believed to be the best possible and workable approach to sensible water management, suggested anywhere to date. No better authority could be found than Carhart. He is the author of the most startling book on water that I have read—"Water-Or Your Life." The committee spent nearly a year in gathering data for its report which was adopted as the national water policy. Its far-reaching potentiality will be easily recognized by all who seriously study it. It is to be widely disseminated as soon as ready for release.

This water problem is not merely something of concern to those in certain areas or watersheds—it is nationwide. Whether we want to take it lightly or seriously, the objective of the OWAA is to warn the people throughout the nation, of the impending water shortage.

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THE PLANT lore of Christmas symbolizes religion, history and romance. In various countries the different plants, trees and flowers are important in the traditions of Christmas because of their close association with the birth and early childhood of Jesus Christ.

Referred to by Virgil as "The Golden Bough," the *mistletoe* is doubtless more widely known, used more extensively for decorations, and is certainly credited with more legends than any other plant associated with Christmas holidays.

The mistletoe was one of the sacred plants of the Druids, and it was gathered with much pomp and ceremony. A white-robed priest cut the sacred mistletoe, using a golden sickle. Twigs and bits of it were distributed among those present, believing the plant possessed magic powers.

Thus having been tainted with paganism before the time of Jesus, for many years mistletoe was considered an unholy plant and was not used in decorations in church. Now, it no longer plays a serious part in holiday festivities, but is used lightly and is a popular plant.

An old monk herbalist is credited with naming the mistletoe "Wood of the Sacred Cross," for this reason: At one time, so goes the legend, it was a handsome and sturdy tree and because its wood was unusually strong the mistletoe tree was selected for the cross upon which the Saviour died. Afterwards, so saddened because of the awful use its wood had been used, the huge tree shrank away until it could no longer stand alone, but must be dependent ever afterwards upon some other plant for its existence.

Scandinavians once regarded the mistletoe as sacred and if two foes met under the plant they laid down their arms and a truce was declared until the next day. Doubtless this was the beginning of the custom of hanging mistletoe over the doorway during the Christmas season, thus pledging to anyone who might walk beneath it peace and friendship. Even today the French and Swedes are staunch believers in the power of the "magic plant" to keep them from harm and wear rings and good-luck charms made of mistletoe wood. In other lands pieces of the plant are worn about the neck to ward off diseases.

Famed and beloved is the *holly*, used extensively for Christmas trees and in decorations. Legend says the Crown of Thorns was plaited from limbs of holly and before the crucifixion the berries were pure white, but after His death the plant was so sad the berries turned red like drops of Christ's blood.

As far back as Pliny's day, holly had supernatural qualities attributed to it. One belief was that it repelled lightning, and the small flowers possessed powers to cause water to freeze. The ancient Druids considered this plant holy because its evergreen leaves proved the sun never deserted it.

The beautiful *yew* is another popular Christmas plant because its stronger lasting qualities represent the soundness of Christianity. Its many limbs are symbolic of plentifulness in all good works. It is always green and prospering, pointing out that Christians should continue to grow and thrive in grace.

Legends of *Christmas*

By J. Casey

The *Rose of Jericho* is said to have first bloomed at Christ's birth, closed at the crucifixion and opened again at Easter. This curious plant, also known as the Resurrection Plant, has the peculiar habit of closing its branches into a compact ball, looking like a bit of dried up leaves. When moistened, the branches unfold, turn green and again looks like a living plant.

The story of the *chrysanthemum*, *water lily* and *snowdrop* relate that they were born at the same time as the Babe of Bethlehem. As the Wise Men were following the guiding star, their route was marked with the pretty little snowdrops. Along the way wherever there was water the star was reflected, and the reflection at once turned into large white flowers, that are today known as water lilies.

After reaching Bethlehem, looking for some token denoting they had reached the right place where the star had led them, the Wise Men were feeling sad, as there were no welcoming music, dancing or feasting—all was silent and gloomy. Suddenly a word from the leader, King Melcher brought the caravan to a stop. He was gazing upon a beautiful flower—just outside the stable and knew that he had reached their destination. The *chrysanthemum* marked the place.

It is the belief of Sicilian children that if they put a plant of *pennyroyal* in their bed on Christmas Eve, at midnight, this plant will bloom.

The *juniper tree* is credited with being one of the trees that furnished shelter to Mary and Jesus in their flight, and is often used as Christmas trees.

Folklorist says the manger in which the Holy Infant reposed was filled with a plant known as *our lady's bedstraw*, and in this country where it is cultivated, it is known as *baby's breath*.

It is said that when the Wise Men were going toward Bethlehem they came upon a young girl who was tending her sheep. Gazing upon the gifts they were bearing to the Christ Child, the girl wept bitterly because she had no gift. Soon she heard a light rustling like the wind and before her an angel stood and asked, "Why do you weep?" She replied that the Wise Men had such magnificent gifts for the Holy Babe, and the shepherds had a white dove, fruits and honey, while I don't have even a flower, for it is Winter."

The angel waved her wand and the entire pathway to Bethlehem was flowered with beautiful white flowers—Wind Flowers. The shepherd girl had a gift—exquisite flowers.

An old Dutch legend gives an interesting account of how the man in the moon came to be there. He was stealing cabbage on Christmas Eve and just as he had filled his basket and was leaving the patch his neighbors caught him. They "wished" him up into the moon where he would be forever out of their way, and there he is—still carrying the heavy basket of cabbage.

There are countless stories as to the origin of the Christmas tree. Supposedly Martin Luther was the first to set up a Christmas tree in the home. The decorated tree was introduced into England by Prince Albert after his marriage to Queen Victoria. Pastor Henry Schwan of Ohio introduced the Christmas tree into church.

According to an ancient story the *Fir* is the Tree of Life, and it once bloomed and bore fruit but Eve

plucked the fruit and its foliage became shrunken and it didn't bloom again until the night Christ was born. Another legend relates how the angels looking for the World's Christmas Tree passed up the majestic oak because its wood was commonly used for crosses. They did not select the beech because it lost its leaves, and the willow was rejected because it was a symbol of weeping. Seeing a fir tree they decided it was perfect for a Christmas tree—it had a pleasant aroma, a nice form, and evergreen needles—an ideal symbol to represent Christmas faith and grace.

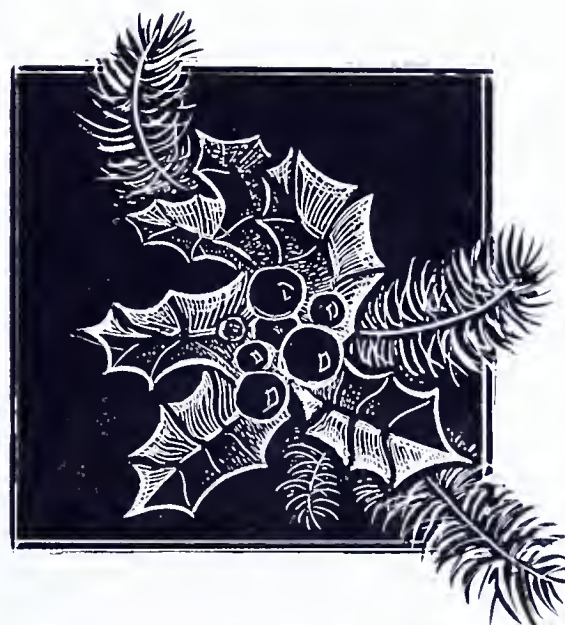
Some historians believe the idea of the Christmas tree goes back to the Aryian race who, living in the foothills of the Himalaya mountains, fancied they saw in the rays of the rising sun the image of gigantic trees. These sun poets added to the tree image suggestions from the more distant heavens, thus the sun, the moon, and the stars became golden fruit that hung on the branches. The larger clouds suggested swans and doves flying in and about the tree, while the golden flash of heat-lightning became the mystical flower that grew on the tree, the celestial mistletoe. From these bits of legends we get the tree itself, as well as decorations.

Some claim the *hawthorn* was the first Christmas Tree, and came about when Joseph of Arimathea, who buried Christ, then went to England. He landed at Glastonbury, walked inland, sat down to rest and thrust his staff of hawthorn into the ground. It sprouted, grew into a tree and always blooms during the Christmas season.

Doubtless the most unusual Christmas trees throughout the entire world are those in the South-western portion of the United States. Here the giant *saguaro cacti*, 40 feet or taller, are decorated where they grow—never cut for indoor use. Church groups and private parties gather around a cacti Christmas tree and sing the beautiful old carols.

The "World's Largest Living Christmas Tree," so

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The Unvarnished Trout

By Gene Burns

Mr. Burns, one of our finest outdoor writers today, recently gained world fame by revising Izaak Walton's *Compleat Angler* into modern version, has written many books destined to take their places in top angling literature.

"The Unvarnished Trout" included in this issue is one of the finest articles it has been our pleasure to present in the pages of the *Pennsylvania Angler*. What commences to be another "Joe and I went fishing" story turns out to be a factual and interesting article every fisherman should read.

See how many popular angling errors you can spot in the five opening paragraphs in this article in which Bob does the talking. Then, upon analyzing these errors with the author, you should fish more effectively and catch more and bigger fish! Also, you'll be able to tell a more convincing story about your fish. Hint: The writer says there are more than 15 angling errors in Bob's narration. Do you agree?

“AND so as I stood up to hot-up my second cup of Java, I just naturally sighted along the Kettle and I saw what I took to be a big trout, arising across the stream. Without lettin' on to Jim, here, I grabbed up my fishing pole which had a Royal Coachman already attached, and high-tailed it down to the stream. When he raised again, sure enough, I could see he was a tremendous trout, a full-grown native, at least 20 years old, fat'n sassy, getting his belly-full of bugs. I would-a called to my pardner, Jim here, but I was afraid I'd scare that lunger. Luck was with me, too: the sky was as clear as a bell, without a cloud in it.

“I stormed right in up to my hips, slightly leading him, with the sun in my face. I could see him laying in about 3 feet of water. I got off a good first cast that dropped my fly 50 feet away, smack-dab right over his nose. Nothing doing. I laid down another in exactly the same spot. This time the color of the fly must-a looked dead right, because the bottom of the Kettle just naturally opened right up, and he took after my fly the hard way—clean out of the water on his way down. I waited out the exact split-second when he clamped his great big white mouth shut and let him have it. And glory be, I was tied into that granddaddy.

“My reel sang as this bronco-busting devil rattled off 30 yards on his first run at express-train speed, proving all over again that ounce for ounce a native trout is just about the world's greatest scrapper! Although I galloped alongside, down that river bank, faster'n a jackrabbit with a cockle-burr prodding under his tail, that trout gained. But my luck held. He changed tactics, settling down to the bottom of that 25-foot pool to chew on my coachman.

“My pardner, Jim here, was 'fraid he'd chew himself clear, so he yelled: 'Tap your rod butt, Bob. Make 'em fight!' Which I done, and he comes boiling up topside and then he lights

out up stream like a hot bolt of greased lightning. Only he finished off this run with the prettiest dance you ever did see, a-shimmying on his forked tail for all of two minutes. He was better'n two feet long, wouldn't you say, Jim? Right around 28 inches. That tail-dance wore him down to a frazzle. I reeled in slow, and as he came in belly up, I reached down with my dry hand and picked him up by his gills. You might say, I had him framed and mounted. He was all'a 8 pounds, wouldn't you say, Jim?

“I was holding him up for Jim to see when he gave a last des'prite waggle, slipped out of my hands, my hook pulled loose, he wiggled his fins, gave his tail a flip, and was gone. And all I got to show for that battle royal are some big scales which stuck to my hand—just a minute boys, until I get them out of my wallet where I keep 'em for show. Jim here seen it all. And with these scales sticking to my dry hands, that great big native must-a curled up and died himself a natural death from germs working in under his skin as the long-haired scientists claim. Of course, had I been able to stay that evening, the chances are I might'a took him!”

Whoa! This has gone far enough. Let's back up now. Bob's narration, factual as it may sound, is loaded with

more than 15 basic fishing fallacies—all of which an angler may hear a dozen times during a season's fishing from dyed-in-the-wool anglers, too! With the accurate scientific information available on trout today, it is truly amazing that so many of Bob's outdated notions should still persist. More's the pity, because with a true understanding of some of these popular misconceptions the self-same fisherman would be much more effective on any stream and take more and bigger fish.

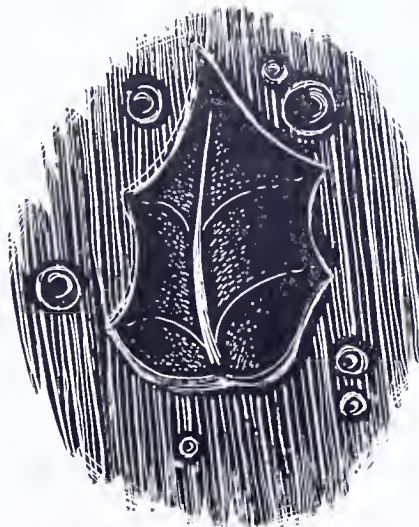
Now let's list these fallacies and analyze them as we go along, looking toward the angler's improvement in his sport.

Hearing: Perhaps the most persistent misconception concerns the game fish's hearing. Three hundred years ago, Izaak Walton quoted Sir Francis Bacon on the feeding of fish at the sound of a ringing bell or the beating of a drum. More recently, a Benedictine monk at Krems, Austria, trained trout to come to feed at the sound of a bell—at least so he thought. But one day a doubting Thomas removed the bell's clapper and behold the trout responded with equal alacrity! Apparently, sight had a great deal to do with the trout's hearing.

Dr. Paul R. Needham, author of that classic, *Trout Streams*, went further. He built an observation tank right in a stream and literally went to sleep with the trout. He found that trout take up their own feeding stations—almost to the inch. More pertinent to our problem, Paul found that when he kicked sharply against the inside of his galvanized tank, the trout moved only slightly and were not alarmed. But at the mere sight of a moving fingertip beyond the edge of the tank, the trout scrambled for cover. Right now!

Notwithstanding, trout do hear and react to some sounds and perhaps they hear and react to some sounds which humans cannot hear at all. Certainly, water is an excellent conductor of sound waves. But seldom do aerial-

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Spinning

Comes of Age

By RAY OVINGTON



ONCE upon a time many long years ago, a man wanted to throw a piece of rope quite a distance. He coiled it in his hands, swung the end in a circular motion to build up momentum and letting go the coils, released it toward the target. Cowboys have been spinning ever since.

An ancient fisherman had the right idea and attained his objective when he carefully coiled the line at his feet and swung the unweighted end sailor style. For a few hundred years we forgot this simple genius and did things the hard way. In the case of fishing it was necessary to be able to reel the line back in and this called for the use of a wheel onto which the line could be wound. The modern fly fishing reel is this same invention dressed up. The bait casting reel likewise, with the basic changes of multiple 4-1 gears and level wind.

Then the light dawned! Why couldn't a fishing reel be made like a bobbin or spool . . . there would be no inertia to overcome, no spool overrunning. The line could be rewound with a revolving bale. It was as simple as that! Though this was the answer to the angler's prayer, the "better mouse trap" was not invented until years later and the angling fraternity, stubborn mortals that they are . . . had to be sold.

Many saw the development of the spinning reel as a device to make casting easy . . . what a horrible thought! Those who were really rash accepted the innovation, setting to work developing the idea and the product and from that day on, the die-hard purists and revolutionists have remained in split camps. The fly fishermen regard the spin fishermen as something even below the snake's belly! The die-hards of the salt water clan, apparently happy that backlashes make their sport more difficult, stand aloof to the intrusion of the salt water spinning rig.

Naturally, with the ever-growing number of pioneer anglers and designers, many new techniques, improvements, theories and methods have developed. A few years ago a spinning rig was a novelty on our waters.

The fixed spool reel, which is the basis of modern spinning tackle, originated among anglers of Southern Europe in the 17th century. Twenty-five years ago in England, a man named Holden Illingsworth introduced the first practical spinning reel. Illingsworth is credited with the first roller or manual line pickup which revolved around the reel spool. Reels of this type underwent constant improvement and spinning began to make its definite niche in American angling prior to World War II.

Our country was pretty new when fly fishing bloomed into a popular sport and its popularity grew by word of mouth. There were few newspapers or magazines and seldom did an angler write a book. Life was quieter, slower, but today the recreation, reflection and pleasure of angling has changed. Our whole way of life has changed, due in part to fast travel and instant communication. When we go to the water now we literally assemble our rod on the run. We want to catch more and bigger fish and spinning seems to be the answer . . . more, easier casts, more strikes per hour and then run like Hades so we can punch the time clock in the morning!

Spinning was introduced over here to a few many

years ago, but it was a "gimmic" then . . . not one of us had any idea it would grassfire so completely. The importers however saw the potential and suddenly boatloads of rods, reels, lines and lures . . . good, bad and indifferent, were on the market. The importers had a field day, for few, knew how to choose. Many American manufacturers were involved with war production or were unable to get the proper metals and so join in the game. Today that picture has changed and American manufacturers are going in for spinning gear full tilt. Domestic competition is levelling off the prices and raising the quality standards at the same time. Now the good foreign imports are on safe ground despite being slightly higher in price than the best of the present day American models.

That spinning takes fish is readily apparent and that it is applicable to all kinds of American fishing is evident. The tackle ads mainly stress the ease of catching fish rather than pointing out the qualities of spinning as a sport. You hear a lot of spinfishermen say that though they like the tackle and good fortune it brings, they don't find the same thrill of play that is found with the fly rod. This is an unfortunate and typical reaction, for today, with few exceptions, spinfishermen go forth with tackle that is unsuited . . . rod, too long and heavy, reel capacity too great, line set with too tight a drag, lures with treble hooks! No small fish can pit a decent battle against these odds.

After you experience the initial thrill of long casts, absence of backlash, victory with more and bigger fish, the finer points of spinning begin to show up. You marvel at the inherent accuracy of the rig . . . a feature appreciated by a scant few. Various trick casts can be easily mastered enabling you to place a lure anywhere regardless of the lack of casting room. After working with your tackle, the subtle reason for selecting a particular weight and size of lure will be recognized. For example, in making your choice of lures you will begin to consider such elements as their wind breaking power in addition to their enticing action in the water. Most important, you will begin to select the proper weight of lure for the type of water you are fishing, thus ending the curse of the novice spinfisherman, the unnecessary loss of lures.

Where you used to consider the fighting qualities and weight of the fish, you now select a rod and reel principally designed for the weight of the line and lure. Certainly a two pound brown trout taken in fast water on a 2-3 ounce 6 foot spinning rod with two pound test line, will have much more of a sporting chance than he would when fighting against a 5-6 ounce 7½ foot spinning rod equipped with line testing 6-8 pounds.

When you go light you go right! Bass, pacific salmon, pike and muskies become real battlers . . . greater fun than you have ever experienced. Now sunnies, perch, bluegills, crappies offer ten times the fun they used to on ANY kind of tackle. The salt water panfish such as snapper blues, mackerel, pompano and school bass really come into their own. So it goes, and you meet the great challenge in the ocean when you tackle sailfish, school tuna, big striped bass and the like on properly balanced salt water spinning rigs.

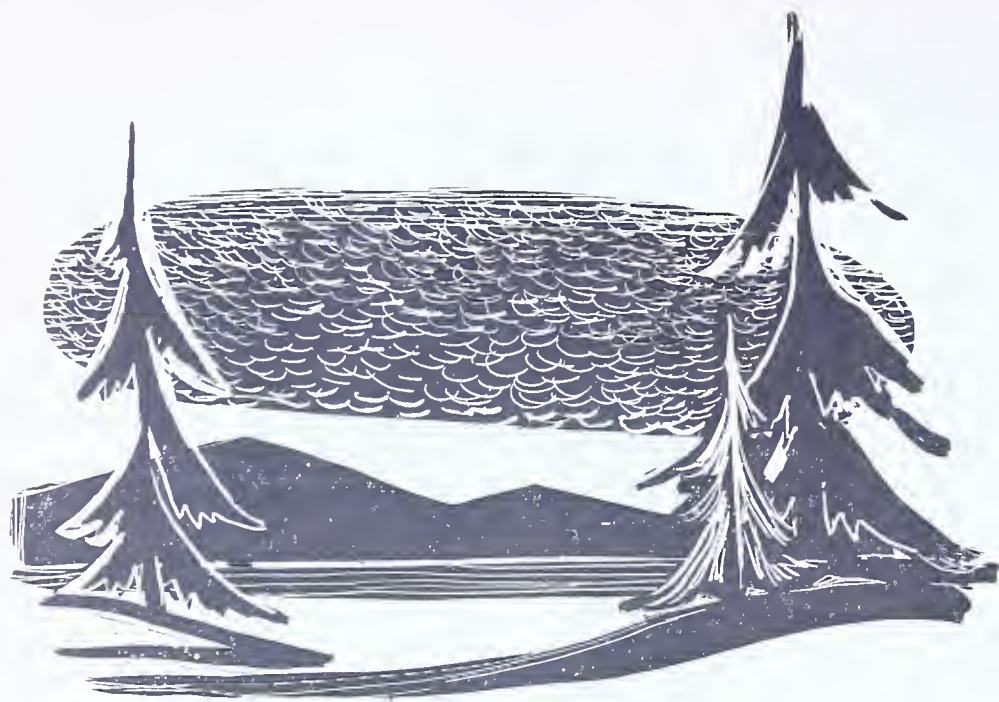


Spinning is not a cure-all for the lazy angler or the all-round rig for the totally inexperienced, though it comes mighty close to it. Luck and ability are still important factors.

Spinning is a method of taking fish that lies somewhere between fly fishing and bait casting, incorporating a little of both, yet absolutely replacing neither. The car has not replaced the horse for certain chores, nor has TV replaced the radio or the phonograph or the newspaper. The point of aim in spinning is to get the best out of it for what it is designed for. Beyond this, you defeat the very purpose for which it was created.

The main things lacking in spinning, especially in America, are tradition and mellowness. The passing of time, and perfection and general acceptance of the tackle will make it the respectable method, fully as sporting as any other type of angling. At the moment however, a howl has gone up that spin fishermen are taking big fish, too many out of our lakes and streams. Yes, beginners are taking home heavy creels on their first day out! The conservation department looks with a serious eye to this new "hot potato" in their midst. Controversy has sprung up in rod and gun club meetings and many hasty resolutions have been proposed, denouncing spinning as unsportsmanlike and regulations against it are suggested to the powers that be. (Already many states and provinces have banned spinning from certain waters.) This to my mind is silly in many ways, for tackle was never responsible for taking fish from the stream. There is no law which says you MUST take home the fish you catch. Recently, we made a survey on the Rod & Gun Club of the Air, Mutual Network radio program. Of the many thousands of letters that came in, most of them were against any restriction . . . (and many of the letters were from sportsmen who didn't own spinning gear . . . they just didn't like the idea of discrimination.)

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Basic Fly

THE selection of flies that go into the kit of the practical angler is the product of years of careful planning and experience. As a matter of course anglers have their favorite methods and lures for the taking of trout. Rash indeed is the angler who claims the ultimate. The day of the purist is past. To fish one method or one type of lure is to deliberately limit your sport. The number of fly patterns, sizes and types are so limitless that the beginner is confused when he comes to purchasing his kit.

A minimum assortment should contain wet, dry, nymph and streamers in assorted sizes and colors. Dry flies should include standard, spider, midge and a group of extremely short hackled flies that float with their bodies so low in the water that they almost break the surface tension. Wet flies should be dressed of extremely soft and absorbent materials so as to sink beneath the surface and have some movement under the influence of the current.

Nymphs should be tied on two kinds of hooks. One the heavy wet fly hook that carries them deep for bottom feeding fish. The second should be tied of light weight materials on the finest light weight dry fly hooks. Those having almost the same specific gravity as water will float in suspension on the surface or just under it. This gives an imitation of a nymph riding at the surface preparing to hatch. Used at the beginning of the evening hatch they will often take fish that will not touch a dry.

Streamers are usually tied with weighted bodies, painted eyes and Jungle Cock shoulders. Whether they are more effective than the plain ones is a debatable question yet our experience seems to prove the fancy ones to be more effective. At least they are more expensive and have finer eye appeal for the angler if not for the trout.

For years I kept a fishing record more as an aid to recalling pleasant trips to my favorite streams, than with any thought of its usefulness. I recorded the date, stream, state of water, temperature, fly hatches, lures used and any other information that seemed important. Now the information obtained from this record is priceless. Going back over these records I find two hundred and forty-three flies mentioned. Some occur only once or at the most through a couple of seasons. Others are recorded season after season. Some are used during highly selective hatches of short duration. Others during periods of none selective rises throughout the season. For the purpose of brevity and to give the beginner a foundation upon which to begin his experimentation I have selected the four flies in each class that I consider the basic ones. This dozen will take trout but an angler limiting himself to these patterns would handicap himself during the more selective rises.

DRY FLIES.

1. Light Cahill dry. Body—red fox belly or flank fur—the more yellow the better. Wings and tail—wood duck,

barred flank feather. Hackle — light buffy ginger, nearly yellow. Sizes 10, 14, 16, 20. Tied standard or spider on size 10 it will sometimes work during the Shad Hatch. In smaller sizes it is perhaps the most dependable dry fly in use today.

2. Dark Hendrickson-dry. Body blue-gray fur from fox or cottontail, tail and wings, barred flank of wood duck. Hackle darkest blue dun. Tied standard, and short hackled for low floating. Sizes 12, 16, 18, 20. First dry taken by trout during the open season also extremely useful in late season when the dark Caddis Hatches are on the water.

3. Badger Quill. Body well marked Peacock quill. Wings and tail—Wood Duck flank feathers. Hackle—Golden Badger, with well defined black center. This little known fly is of English origin yet it imitates many of our somber hatches to perfection and has a distinctly “buggy” look which appeals to the trout. Sizes from 14 to 20.

4. Black Gnat. Body—Black Ostrich, Light gray hackle—feathers for wings—Hackle Black—tail none or a few short (red-dyed) hacklefibers. Size 16, 18, 20. Larger size for brook trout on mountain streams smaller for midge rises on all waters. We sometimes tie size 20 wings. Tail or hackle for late season.

WET FLIES

1. There is no question in the mind of the writer that the March Brown ranks first among early season wets and that it is effective throughout the season at various times, due no doubt

Patterns

By Albert G. Shimmel



to its resemblance to a variety of aquatic life. Wings—Bustard speckled turkey. Body—Orange brown fur from between the ears of a cotton-tail spun on yellow silk. Ribbing, medium gold tinsel with the fur showing in a ragged fashion between ribs. Tail—three fibers of barred wood-duck or grouse tail feather tied long. Hackle either brown partridge or brown cock from Rhode Island Red. Sizes 14-16.

2. Second place on the wet fly list must go to another old timer that has almost disappeared from the fly books of anglers. Its name, the Irish Iron Blue Dun. Lay a pair of wings cut from the primary feathers of an American Woodcock which are a deep smoky grey, above a body of mole fur ribbed with narrow silver wire. Find a natural hackle to match the body and tie on sparsely. The tail is two scarlet fibers from a silver pheasant crest. Occasionally we leave off the tail and ribbing without seeming to destroy its effectiveness. The general effect when wet is that of a very dark insect. The soft wings, body and hackles all combine to make it one of the good all around wets. Size 14-16.

3. The third wet fly on our list is a Lead Winged Coachman. Wings of American wood cock, flight feathers. Body—Bronze Peacock herl, Hackle brown cock. This fly is particularly useful during the early mornings of mid or late season. Cast close to the shore pockets it is taken vigorously particularly by brown trout. Sizes 12, 14, 16.

4. The number four would be the Orange Fish Hawk. Body—Orange silk, ribbed with flat gold tinsel. Hackle—soft golden badger with a dark gray rather than a black center. At other times we tie it with gray speckled partridge hackle. When wet and the hackles folded along the body it resembles some of the common nymphs. Sizes 10 to 16.

NYMPHS PATTERNS

1. Rock Worm. Body lemon wool, rived with black horse hair. Hackle genuine hen neck. This one is tied on extra heavy hook and fished close to the bottom. Size 10-12.

2. Quill nymph. Body built of spun fur then soaked in lacquer and flattened. Over this is tied a body of well marked peacock quill. Tail and hackle, brown partridge. This is tied on light dry fly hooks and used to fish the rise after the manner of a dry fly. Hook size 14-16.

3. Gray nymph. Body of rabbit fur ribbed with fine silver wire. Tail three strands of brown partridge. Hackle, small brown cock. Heavy wire hook sometimes weighted with fuse wire. Size 10 to 16. Good all season pattern.

4. Humped-Back nymph. Body of light fur ribbed with dark quill and flattened after being saturated with clear lacquer. Wing cases of dark duck or turkey tied in a hump at shoulders. Hackle either gray or brown partridge. Tail of wood duck cut short. We sometimes tie tails of the stiff bristly feathers from near the bill and mouth

of the horned owl. These feathers form very realistic tails. Size 10, 12, 14.

STREAMERS

1. Black Ghost. This originally was a land locked salmon fly but has proved consistently effective on trout and bass. Body, black silk ribbed with flat silver; tail and throat, golden pheasant crests. Wings, white saddle hackle. Shoulders Jungle Cock.

2. Edson Tiger, Dark. Body peacock herl, tail Wood duck with wide black and white barring. Throat crimson hackle tip. Wing, white buck tail over a few strands of yellow. This is a close competition to No. 1.

3. White Maribou. Body Silver tinsel. Wing white maribou plumes with a half dozen strands of peacock herl tied either on top or through the center of wing. Throat crimson hackle fibers with Jungle Cock Shoulders.

4. Black and White Bucktail. Wings white bucktail with a thin line of black bucktail through the center. Body silver tinsel. Tail and throat red feather fibers. Shoulders Jungle Cock.

All streamers have weighted bodies and painted eyes in addition to the Jungle Cock Shoulders. Sizes run rather smaller than those carried by most stores. Mine are from size 8 to 12 with the 8's not over 1½ inches over all and the 12's about ¾ inch.

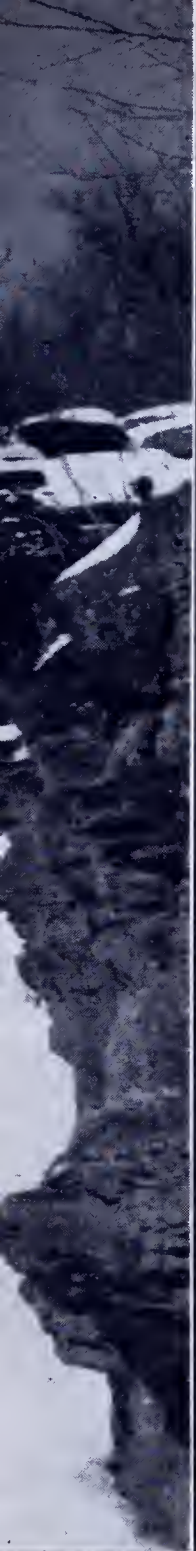
With four patterns from each class the beginner has a foundation for his experimentation toward a perfect kit of lures.



Reseca Falls, Bushkill Creek,
Monroe County.

Winter Wonderland

By La Mar Mumbar



**Branch of Perkiomen Creek,
Berks County.**



**Bushkill Creek, Monroe
County.**



By Ben C. Robinson



The Cosmopolitan Angler

BACK in the depths of the African jungle a tribe of black hunters trade monkey skins with a professional white hunter who hails from the state of Texas. In the collections of skins taken from the monkey kills these natives practice in their daily modes of living there are four special kinds the white man trading with the tribe is particularly interested in obtaining.

The first and possibly the one most prized by both parties involved in the bushland transaction is that of the "Columbus" monkey as some fishermen and fly tyers in America know the species. To the African it is the Sacred Monkey and from its pelt the natives fashion their special battle shields and the sacred head dresses worn in all ceremonial occasions. All who have followed the history of the Dark Continent will recognize this symbolical skin that more, perhaps than any other we are familiar with, renders the native tribesman a wild and spectacular personage. This is one of the most prized trophies of the hunt the trader tries to get when dealing with the native hunters.

The Sacred African Monkey Skin is a valued part of every fur, feather, fly tying and lure making importers' stocks. From the broad white stripes that run along the dark, medium length

black sides of this pelt a long white hair is derived that makes a fine quality streamer fishing fly and also an ideal material for constructing wings for hair fly dressings. Aside from the value of this hair for streamer and hair fly dressings, which the majority of the anglers value for their trout, bass and panfish patterns of wet flies, the long white hairs from this skin are also highly prized by many muskellunge anglers in dressing the single and treble hooks that are part of a spinner or a spoon trolling and casting lure for the bait casting rod and rigging.

There is a prime reason for this hair being so extremely killing on all species of our game fish when it is used for treble hook and single hook-equipped lures, from the smallest and daintiest of trout offerings to the largest of muskie and pike casting lures and trolls. The Sacred African Monkey skin will produce this long, vibrant grade of hair with a natural trait for moving and simulating the breathing actions of some living thing when it is being slowly retrieved through the depths of a pool or when it is resting momentarily on a watery surface. This causes the hair of this species of monkey to be extremely well adapted to bass bug, trout bug and panfish bug fishing. Also for the dressing of all hair fly

wings intended for smallmouth black bass fly fishing in a wet style.

Of course the white trader dealing with the native hunters prizes the Sacred Monkey highly, but that is not his only goal in transacting his dealings with them.

The Black African Monkey is another valuable skin he has to include in his business of collecting skins, plumes and feathers for the American fishing materials market. His importer employers find there is good demand among fly tying hobbyists and lure manufacturers for the glossy, solid black hair of this plain colored monkey's skin. It is shorter than the Sacred monkey's white hairs, but it has the jet black gloss and the fine texture that gives it the "breather" action so important in a streamer or hair fly pattern of fly. This is a species natives usually hunt for food; the flesh having, as we are told, a taste like human flesh, a rich and pork-like flavour. The skins of the game are saved and sold to the traders who scour the jungles, plains and mountains for these commodities of hair and feathers. Large importers of fishermen's supply materials, like the Herter's, Inc., of Waseca, Minnesota, search every nook and cranny of the world to collect them.

The Silver Monkey and the African Barred Orange Baboon are two other

specimens that come from the African native hunters collections and certain professional white hunters who operate widely in the big game sections of the African Continent. The Silver Monkey is a rare animal, and very few are taken by the hunters. Its fur is a soft dun color at the base that gives it value to the angler and his fly dresser for making dubbed bodies for panfish and salmon flies. The top sections of the hair has a black and white to black and cream barred pattern which renders it valuable to some fly tyers for simulating light barred wood duck and barred mallard wings and streamers, for flies that are made from hair rather than feathers.

The vicious African Orange Baboon, a savage customer to which every African sportsman and traveler can attest, produces a very colorful, attractive hair for streamer and hair wing flies for panfish, bass and trout. This hair is also used by some lure makers for bass and muskie treble hook coverings in connection with spoon and spinner lures. The barred markings of the baboon hair, that comes from the back of the skin in approximately three inch lengths, can be used to simulate the lemon wood duck patterns as each hair is alternately barred with black and orange markings that extend from near the base of the hair to its tips.

After the monkey skins are bagged or traded for by the white hunters and their agents in Africa, the scene of the fly and lure collections, shifts to other fabulous and distant quarters of the globe.

In the mountains of India, a small white goat is held in high value by the natives for its meat and seduced into traps for them by building special snares. The skins of this goat are carefully saved and sold to traders seeking the soft and silky hair of this species for shipment to Herter's, Inc., of Waseca, Minnesota, or some other equally cosmopolitan importer. This is the Caparas, as the goat is called, which makes an unusual and effective hair for streamer fly wings. It is dyed and can be had in white, red, yellow and black colors. It is ideal for panfish and trout streamer wings. I have used it for night fishing near the surface with a long shank hook of size 8, when big rainbows were hitting hard and it is a very killing part of the fly, especially just after dusk has deepened on a trout stream and dense shadows lay heavy.

India is the home of many rare fly

tying materials. Here the fabulous Jungle Cock shoulder feather is found. This is a "must" for most salmon and streamer fly dressers. The genuine Jungle Cock eye feather is perhaps one of the most frequently used shouldering feathers for streamers of all plumage known. It comes from the wild grey jungle fowl, hunted for sport in India with shot guns and used for a table delicacy, the neck skins saved and sold to traders as a by-product.

Another famed fishing product of Asia is the genuine gamecock necks derived from the wild Jungle Fowl, the real wild chickens from which all domestic chickens spring. These are found throughout all Asia and are the best quality hackle feathers the angler and fly tyer can find. When the birds are domesticated their feathers become wider and softer, lose value for fly tying.

Another feature of fly tying material gathering of which many fishermen are

not aware is connected with the widely used Starling feather, that so frequently and so pleasingly touches the matter of our best fishing fly patterns. The best Starling feathers are procured in England where gamekeepers on the estates trap these birds in large traps baited with a trail of grain. They are caught by the thousands at one haul and the breasts of the birds are sold on the markets there for concocting delicious meat pies. The skins are carefully saved and sold to agents who ship them to the fly fishing material dealers all over the world. The English starling is not like our American bird of the species that was imported to this country. There are many varieties of starlings throughout Europe and Asia. Game keepers are kept on all the large estates in England; from them come the real English Starling skins with the prized light-colored tips to their feathers.

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IT HAD been hot work, driving out to Wisconsin. The long, flat Ohio roads had been endless and even the breeze off the lake that night brought little relief. We were glad to reach Madison the next day. The trip across the remainder of Wisconsin was just about as bad, and Prairie du Chien was frying under the hot sun when we pulled in. By and large, it had been a miserable three days on the road, endured only because of incredible accounts of the superlative bass fishing to be found in the sloughs and backwaters of the Mississippi River.

Naturally when we arrived we inquired about the fishing. "Wonderful," they told us, "simply wonderful. No trick at all to pick up forty or fifty a day using either plug or bass bug."

Somehow or other that miserable, hot journey seemed less oppressive when viewed in retrospect and weighed against the immediate prospects of top-notch bass fishing with, later on, a musky or two thrown in.

Next morning, in company with the local game warden and two local fishing enthusiasts, we went bass fishing. We explored the known hot spots with our own lures and those of local manufacture. We toured into the back-behind places, difficult of access and rarely visited. We tried all the tricks we knew and picked up some new ones from our guides. For three days we labored earnestly. The bass simply refused to cooperate. Finally our time ran out and we must move on. Regretfully we said good-bye to

our friends in Prairie du Chien. Almost as one man they spoke in chorus.

"It's a darn shame the fishin' was so poor. Gee whiz! You should'ha been here last week."

We headed north in the direction of Hayward and Flambeau Flowage where the muskys are large, ferocious and willing. About halfway to Hayward the storm broke—which, incidentally, it had been threatening to do for three days, putting down the bass and upsetting things generally. Never, even in the tropics, have I seen it rain harder. Not being able to see the road, we parked on the shoulder, turned on the lights, and sat it out. Hours later, after many detours, we arrived at camp, dead tired.

We had planned to fish the amiable waters of the St. Croix River for smallmouth. When we arose the next day the St. Croix had left its usual place between high banks and had come to meet us. The dock was under six feet of water, the boats were swamped, and there was flood water covering most of the camp lawn. By detouring via a ridge through the adjoining woods, we managed to reach the main camp and breakfast dry-shod.

It being impossible to fish the St. Croix, our host took us to some bass lakes during the next two days. The fish were still out in deep water—an aftermath of the storm—but they did cruise in over the shallows during the feeding periods and we managed to get some fair, if spotty, fishing.

All things must end, so after two days of fishing small lakes and ponds we we packed our gear and headed for the musky country. This took us to Hayward. Not only was the main street a wreck from flood damage but the residents were pumping out cellars and striving to undo the results of four feet of water in the main business section.

There is a bar-and-restaurant combination in Hayward on the walls of which are hung the mounted remains of at least a dozen impressive muskellunge, some of them world record breakers of their times. I gaped at these monsters, making mental note that

you should'ha been her

By John Alden Knight

all of them had met their untimely ends not fifty miles from where I stood. I could feel my blood pressure mounting. This was *it*, I told myself; the lure that had prompted us to brave the elements and drive many hundreds of weary miles over blistering roads. My steps were springy as I walked back to join the party.

From Hayward we drove to camp on Ghost Lake. Twice we had to detour because of washed-out bridges and once one of the cars bogged down in a flooded road and had to be towed out, but we made it. Guides and boats had been engaged for the next day on Twin Lakes and our host assured us that we were due for some excellent sport. Of course not many fish had been caught there lately, what with the storm and all, but *before that*, say, two weeks ago, they *murdered* 'em. Over cocktails that afternoon before dinner we drank a toast to the confusion of the muskys of Twin Lakes. Dinner finished, we spent the evening visiting the tackle shops and investing in new and better musky lures.

The next morning dawned hot and sticky, with thunderheads on the horizon. All of us fished earnestly, using the new musky lures and then borrowing some, not so new, from the guides. We tried all the tricks we knew and even invented some fresh ones. Nothing doing. Those Twin Lakes muskys ignored us. We returned to the dock that evening totally fishless and, for that matter, strikeless.

The following day, in the same waters with the same guides, we duplicated the performance, with the exception of my son, Dick, who actually did hook and land a twelve-pounder. That fish not only was the only one caught; it was the only strike and the only fish that any of us saw in the entire two days. In the afterglow of sunset we returned

to our camp, tired and discouraged, welcoming the notion of a little mild pre-prandial stimulant to dispel some of the blue haze that had settled. We were intent upon the business of blues dispersion when it happened.

There was a blinding flash of lightning with a simultaneous explosion of thunder and the heavens opened up and gave us their full treatment. With the rain came the wind in hurricane proportions. The big pine trees among which the camp was set bent dangerously and two of the larger ones toppled to earth with alarming crashes, mercifully missing our roof. For over an hour the storm raged. Water blew in through the closed windows and under the doors. The electricity failed, leaving us in darkness. When, at long last, we managed to make our way to the main camp, there was a cold dinner awaiting us. To my mind there is nothing more dispiriting than a cold dinner which has once been hot. By the light of a borrowed oil lantern we turned in early between damp sheets.

The next morning we packed our gear and readied ourselves for the long drive home. The fishing trip was over. Our host, of course, was all apologies. He urged us to stay longer, pointing to the weather which was bright, crisp and sunny. Regretfully we declined the invitation and said good-bye. Then it came.

"Awful sorry about the fishin', boys. Been right good up til a short time ago. Gosh almighty! You should'ha been here ten days ago."

This sort of thing is not merely a once-in-a-while occurrence. It happens all the time, regardless of the circumstances. Camp owners, guides, club members, anybody who acts as host, professional or amateur, sooner or later is bitten by the "you-

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last week





ALIBIS

By GEORGE X. SAND

I HAVE a friend who has gained considerable recognition as a prosecuting attorney. The other day, as we were walking down the courthouse steps together, I congratulated him for having just won a particularly difficult case for the state.

He glanced sideways at me and smiled. "If the defendant had been a fisherman I probably would have lost," he said. "He would automatically have had an air-tight alibi before he ever took the stand."

I knew exactly what he meant. Only the week before I had broken out the waders and fly rod from the attic to usher in another trout season. The spring morning was slightly chilly as I set out, but not necessarily uncomfortable.

However, when I came upon several of the boys tangling backcasts down in the stream bottoms the first one piped up immediately with, "Too cold; you can't expect to take fish in weather like this!"

Alibis. He hadn't been fishing a half hour and he had no idea we weren't going to get trout here (actually, we did get them), yet he was all set with an excuse in advance.

As I worked my way downstream I met another guy in this same group who was complaining about the wind. "It's upstream when it should be

down," he muttered. "A wind that bucks the current will put the fish deep every time."

Upstream, downstream, cross stream, I don't believe Mother Nature has ever produced a wind to completely satisfy a fisherman.

And let us not forget the moon. I know a chap, a really terrific salt water fisherman, who carries about \$4,000 worth of tackle about with him and who has broken more records than any living man. You wouldn't think a person of his status would need an alibi, yet he has one, cocked and ready to fire at a moment's notice. If the fish aren't biting it's simply a case with him of the "moon not being right." He thinks nothing of rolling out of bed at two o'clock in the morning if one of his "moon books" indicates the fish may be biting at that hour. Should they not bite his alibi is that the guy who wrote the book didn't quite figure the moon's position correctly . . .

Then there's the matter of the sunny day versus the overcast sky. This is a real favorite. One beautiful morning I hurried to a deserted beach that separates North Carolina's Pamlico Sound from the sea. There were no tire marks on the strand and I felt confident no one had preceded me to a favored hide-hole for striped bass.

I was wrong. A guy had beaten me to the exact spot. His jeep was backed up before a dune, and all appearances indicated he'd spent the night there in anticipation.

I needn't have alarmed myself, however. Although his well-worn gear presented all the earmarks of an experienced angler, nevertheless he sat on the beach and glanced up disconsolately when I drew near.

"What's up?" I asked.

"Bad day; came all the way out here for nothin'."

"So?"

"Bluebird weather. You need a good storm for striper fishin'."

"You've . . . tried it . . . today?"

He nodded shortly. "Few times, yeah. But it's a waste of time. Can't you feel it?"

All I felt was relief. I tried to look properly unsure of myself as I rigged up. And I was rewarded with his pitying glance as he drove off.

He'd hardly gotten out of sight when I had the first one flopping on the beach. I took three before lunch, and they were all big.

Then there is the matter of tide. Be it ebb, flood, neap or spring, you can bet it is going to provide a first-class alibi for the guy coming home empty-handed.

Another favorite of long standing

PENNSYLVANIA ANGLER

with the Alibi Ikes is the time of day. There is a certain elder American sportsman—I'm simply going to call him "Pop" here because he is rather well known among the fishing fraternity—who several years ago became entranced with a picturesque fishing lodge in the Quebec lake country. He has returned there every season since.

Listening to Pop's pulse-stirring description of this breathtakingly beautiful spot—and it is literally breathtaking—it doesn't require much urging for you to accompany him there as his guest and try your flies on the big brook trout which you visualize lying in wait in the shade of the rocks and forested shores.

When you arrive you can hardly wait to assemble your long rod and begin casting over the mirrorlike water of the lake. You are convinced Pop hasn't exaggerated one bit in his description of the place. The magnificent blue lake is set against a majestic travel-folder background of tall trees and sweeping hills and brilliant, cloud-puffed sky.

You don't get any strikes, however. Your arm starts to tire but you can't bring yourself to stop because your host is sitting in the stern of the canoe, paddle across his lap, telling you reverently of the many times he's seen the big, glistening backs abruptly break the surface to leave a widening

ring of ripples. Time and again he sat here like this in the dusk, smoking his pipe and listening to the brookies rising on all sides. You can almost hear one of Pop's lunkers coming busting up through the calm surface, shaking himself savagely and landing noisily in a shower of spray.

After the second or third day of this heart-breaking fishless routine, should you confess your suspicions to Pop—tell him bluntly that while you realize you may be in the heart of some of the world's best brook trout country this particular landlocked lake obviously cannot boast a single danged one—he will reply testily these fish of his have the bad habit of feeding at different times each day; that the two of you obviously just haven't managed yet to try them at the right time!

A poor alibi. But an understandable one, perhaps, in this case. Pop is living in the past. At one time, no doubt, he *did* catch big brook trout in this last retreat of his . . .

But the alibis to end all alibis, I have found, spring from that eternal hassle: what are the best lures to use.

As an example of this, last spring I joined a party of four men to go deep into the Everglades country, on the lower west coast of Florida. It was to be a three-day boat trip, designed to take us in after the wide variety of salt water game fish which that still

unspoiled region has to offer. It was understood before we left the dock that the man catching the least number of fish was to pay all expenses for the trip. Naturally, this produced some keen competition.

One by one we explored the virgin mangrove waterways that spawn there in the verdant, tropic jungle with its wild orchids and chattering, exotic birds, then lose themselves in the gentle blue-green swells of the Gulf of Mexico: Lostman's and Rogers Rivers; the Broad and the Shark. The winding waterways lay silent, majestic; sleeping beneath the hot sun, with now and then a leaping tarpon showing itself in the distance.

We caught fish, of course. Redfish, snook, snapper, tarpon, big sharks, trout—in fact, a greater variety and number than men seemed to have a right to take in these days of increasing scarcities. We released practically all the edible species, keeping only those that were obviously hurt and not apt to recover. For we knew there were going to be plenty more.

It became a real race. By the end of the first day, sunburnt and weary, I was leading by a comfortable margin. We were working from small outboard skiffs, two men to a boat, taking turns of an hour on and the next off, and

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PENNSYLVANIA FISH COMMISSION ADOPTS FISHING REGULATIONS FOR 1954

At the Annual Meeting of the Pennsylvania Fish Commission the following seasons, sizes, bag limits and special regulations governing fishing for the year 1954 in the inland waters, Lake Erie, Delaware River and Pymatuning Lake were adopted.

Fishing Regulations — Inland Waters — 1954

Species	Season	Size	Number (One day)	Remarks
TROUT Brook Brown Rainbow	April 15 to July 31 Season opens 5 A.M., April 15	Not less than 6 inches	8 (Combined species)	Covers all species of trout except Lake or Salmon Trout
TROUT Lake or Salmon	April 15 to Nov. 30 Season opens 5 A.M., April 15	No size	8	
BASS Small and Large Mouth	July 1 to Nov. 30	Not less than 9 inches	6 (combined species)	
PIKE PERCH	July 1 to Nov. 30	Not less than 12 inches	6	Otherwise called wall-eyed pike or Susquehanna Salmon
PICKEREL	July 1 to Nov. 30	Not less than 15 inches	6	
MUSKELLUNGE	July 1 to Nov. 30	Not less than 24 inches	2	
PIKE Great Northern	July 1 to Nov. 30	Not less than 16 inches	4	
CHUBS	Any time of year	6 inches	15	* See note below
FROGS	July 2 to Oct. 31 (Sunday excepted)	No size	15	Not more than 50 in any one season (frog and terrapin law, Sec. 1, 2, 3, 4)
TADPOLES	July 2 to Oct. 31 (Sunday excepted)	No size	15	
TERRAPIN (Red leg)	Nov. 2 to March 14	No size	5	Not more than 50 in any one season. All other turtles unprotected.
BAIT-FISH or FISH-BAIT	Any time of year	No size *	Bait-fish—35 Fish-bait—35 Combined—50	
BASS White	Any time of year	No size	Unlimited	
BASS-ROCK Otherwise known as red-eye or goggle-eye	Any time of year	No size	Unlimited	
BASS Crappie or Calico, Black or White	Any time of year	No size	Unlimited	
CARP	Any time of year	No size	Unlimited	
CATFISH	Any time of year	No size	Unlimited	
EELS	Any time of year	No size	Unlimited	
FALLFISH	Any time of year	No size	Unlimited	
SUCKERS	Any time of year	No size	Unlimited	
SUNFISH-BLUEGILLS	Any time of year	No size	Unlimited	
YELLOW PERCH	Any time of year	No size	Unlimited	

(In the above mentioned seasons, both dates are inclusive.)

All fishing is prohibited in any waters from March 14th to April 15th except in rivers, lakes and ponds not stocked with trout.
(All fishing is based on Eastern Standard Time)

* **SPECIAL NOTICE**—Under amendment to Fish Laws passed at 1951 Session of Legislature, chubs measuring less than six inches in length are now classified as bait-fish.

POSSESSION LIMIT—Fishermen in camp or returning from a several days fishing trip cannot have in possession more than one day's catch of any of Trout, Bass, Pike Perch, Pickerel, Muskellunge.

Explanation—You could not bring home or have in possession more than eight trout at any time.

TROLLING FROM MOTOR BOATS—Under resolution adopted by Commission, trolling from motor boats is permitted on all rivers, Conneaut Lake, Wallenpaupack Lake, Youghiogheny Dam and Pymatuning Lake from the main dam near Jamestown northwardly to the causeway at or near Espyville.

BURR HOOKS—The Commission considers a burr of three points as one hook, thereby permitting use of the plug bait with three burrs of three points each.

ROWING BOATS—To row boats for fishermen you must have a fishing license.

LAMPREY EELS MAY NOT BE USED FOR BAIT IN ANY OF THE INLAND WATERS—Every minnow box anchored in a stream, pond, lake or place of residence must have attached thereto the owner's name and address and fishing license number. If maintained by more than one person, it must be in sections and each section must have owner's name and address and license number.

Pennsylvania fishermen are also permitted to take bait on a fishing trip either within or without the State provided the possession limit is not exceeded and the bait are for his own use. If there is more than one fisherman, bait must be in separate containers or a divided minnow box or bucket.

No person or persons are permitted to bring bait-fish or fish-bait into Pennsylvania for resale without first securing a permit issued by the Pennsylvania Fish Commission, Harrisburg, Pennsylvania. In making a request for a permit, all persons must supply the Commission with name and address of the person or dealer from whom bait-fish or fish-bait are to be purchased, species of bait they desire to transport, number, place of business where fish will be resold, etc. Dealers must keep a record of all fish-bait or bait-fish purchased under their permit and copies of bill of sale to individual fishermen which must check with purchases made.

FISHING REGULATIONS—PRESQUE ISLE BAY, LAGOONS AND PONDS—There shall be no seining from the shores of Presque Isle Bay or the shores of the lagoons and ponds—Permit to be issued for the use of seines not over twelve (12) feet in length for the taking of minnows from docks or boats.

There shall be no fishing permitted behind any of the restricted areas starting at the west boundary of the Erie Yacht Club around the entire shore line of Presque Isle Bay to the Perry Monument or any other posted area before June 15.

No. 2—Fishing Regulations—Delaware River above and below Trenton Falls—1954

By authority of the Act of May 2, 1925, P. L. 448, Section 251—Penalties for violation as provided by the Fish Laws.

Species	Season	Size	Number (One day)	Remarks
TROUT (All species)	April 15 to July 31	Not less than 6 inches	20 (combined species)	
BASS (Large and Small Mouth)	June 15 to Dec. 1	Not less than 9 inches	10 (combined species)	

PENNSYLVANIA FISH COMMISSION ADOPTS FISHING REGULATIONS FOR 1954

No. 2—Fishing Regulations—Delaware River above and below Trenton Falls—1954—(Continued)

Species	Season	Size	Number (One day)	Remarks
BASS Rock or Red-eye or goggle-eye	June 15 to Dec. 1	Not less than 6 inches	Unlimited	
BASS White	June 15 to Dec. 1	Not less than 6 inches	Unlimited	
PIKE PERCH	June 15 to Dec. 1	Not less than 12 inches	10	Otherwise called wall-eyed pike or Susquehanna Sal- mon
PIKE	June 15 to Dec. 1	Not less than 12 inches	10	
PICKEREL	June 15 to Dec. 1	Not less than 12 inches	10	
BASS Crappie or calico, black or white	Any time of year	No size	Unlimited	

(In the seasons as listed above, both dates are inclusive)

No. 3—Fishing Regulations—Delaware River Between Pennsylvania and New York—1954
By authority of the Act of May 2, 1925, P. L. 448—Penalties for violation as provided by the Fish Laws.

BASS (Large or Small Mouth)	July 1 to Nov. 30	Not less than 10 inches	6 (combined species)	
ROCK BASS	July 1 to Nov. 30	Not less than 6 inches	Unlimited	
TROUT (All species)	April 15 to Aug. 31	Not less than 7 inches	10 (combined species)	Species of trout, brook, brown, rainbow, steelhead and red throat
PIKE PERCH (Wall-eyed pike)	May 10 to March 1, next ensuing	Not less than 12 inches	15	
PICKEREL	May 1 in any year to March 1 of ensuing year	Not less than 12 inches	15	

(In the seasons as listed above, both dates are inclusive)

No. 4—Fishing Regulations—Lake Erie—1954—By authority of the Act of May 2, 1925, P. L. 448, Section 251.
Penalties for violation as provided by the Fish Laws. Presque Isle (Erie) Bay and Peninsular Waters.

Species	Season*	Size	Number (One day)	Remarks
BASS (Large and Small Mouth)	June 15 to Nov. 30	9 inches	6 (combined species)	
MUSKELLUNGE	June 15 to Nov. 30	Not less than 24 inches	2	
PIKE Great Northern	June 15 to Nov. 30	12 inches	8	Known as Grass Pike
BASS Crappie or calico	Any time of year	No size	Unlimited	
ROCK BASS	Any time of year	No size	Unlimited	Otherwise known as Redeye or Goggle-eye
SUNFISH Bluegills (Bream)	Any time of year	No size	Unlimited	

(In the seasons as listed above, both dates are inclusive)

* SPECIAL NOTICE—All species not specifically mentioned in the above summary are classed as food fish and may be taken at any time of the year by approved legal devices.

REGULATIONS FOR TAKING SMELTS:

1. Waters affected: All streams emptying into Lake Erie, within the confines of Pennsylvania, from the mouth of the stream in a southerly direction to State Highway Route No. 5, which is a distance of approximately ½ mile.
2. Season: March 15th to May 31st, both dates inclusive.
3. Size: No size.
4. Number: Unlimited.
5. Devices: Only a dip net not over 20 inches in diameter or 20 inches square.
6. License: All persons coming within the provisions of the law to have the proper fishing license.

No. 5—Fishing Regulations—Pymatuning Lake—1954—By authority of the Act of May 2, 1925, P. L. 448, Section 251.
Penalties for violation as provided by the Fish Laws. Location: Between States of Pennsylvania and Ohio—Crawford County.

Species	Season	Minimum Legal Length in Inches	Number (One Day)
PIKE PERCH	May 30 to Nov. 30	13	6 Wall-eye or Yellow
BLACK BASS	July 1 to Nov. 30	10	6
MUSKELLUNGE	July 1 to Nov. 30	30	2
BLUE GILL OR SUNFISH	No season	No size	Unlimited
CARP	No season	No size	Unlimited
CATFISH	No season	No size	Unlimited
CRAPPIE OR CALICO BLACK OR WHITE	No season	No size	Unlimited
ROCK BASS	No season	No size	Unlimited
SUCKERS	No season	No size	Unlimited
YELLOW PERCH	No season	No size	Unlimited
WHITE BASS	No season	No size	Unlimited
MINNOWS (2 rods and lines or 2 lines only)	No season	No size	35
FROGS (Unlawful to take frogs by use of a light)	July 2 to Oct. 31, inc. (Sunday excepted)	No size	25 in one day 50 in one season
TADPOLES	July 2 to Oct. 31, inc. (Sunday excepted)	No size	25 in one day or in possession at any one time.

(In the seasons as listed above, both dates are inclusive)

FISHING DEVICES—Two rods and lines or two lines allowed in possession.

Penalty for fishing in bodies of water which have been drawn down under proper permit and so posted \$20.00.

All of the foregoing under Resolution No. 22, setting up open seasons, size, creel limits, and regulations for 1954 were adopted by the Pennsylvania Fish Commission Oct. 5, 1953. Penalties for violation as provided by Fish Laws.

LEGENDS OF CHRISTMAS

(From page 9)

designated, is located at Wilmington, N. C. A. majestic live oak, 90 feet tall, with a diametric spread of 110 feet, was first decorated in 1929. It requires three to four weeks to decorate the tree with its more than 5,000 colored lights and 6 tons of Spanish moss.

One of the most famous Christmas trees in the world is the community tree on the White House lawn in Washington, D. C. Since 1923 when a giant fir tree was cut from the Green Mountains and presented to President Coolidge, lighting the tree on the lawn has become an annual event. The tree is lighted by the President as a symbol of peace on earth and good will to all mankind.

The Nation's Christmas Tree, the famous General Grant, located in the General Grant National Park, due east of Fresno, Calif., 64 miles, was so designated on Christmas Day, 1925. Since then devotional and patriotic services are held beneath the tree each year and are broadcast over nationwide hookups. Snow falls abundantly in this region, but usually the services are attended by large numbers.

COSMOPOLITAN ANGLER

(From page 19)

English Blue Jay wings come from birds that originally came from Japan but after they were introduced into England became a menace to small birds. Special bird traps are employed by gamekeepers on the estates for their capture. The wax-like shoulder feathers are saved and sold at home and abroad for streamer shouldering. The European Curlew is another bird with wings that are saved by hunters in Norway who shoot them on their migrations, save the meat for themselves and sell the wings to importers for use in making wings for wet and dry trout and panfish flies. Feathers from the shoulders of the birds are used for

wet fly hackles and making legs for the artificial nymph-type lures that are good panfish and trout attractions. The Curlew has a colorful mottled tan and brown eye feather on the shoulder of the wings that is highly revered by salmon fishermen on some patterns of dry and wet flies.

The English game keepers on the big estates supply most of the ring-necked pheasant skins that are used here in America for parts of the fly fisherman's list of fancy flies. The owners of the estates hold great pheasant shoots where literally thousands of the birds are bagged. These are skinned by the gamekeepers, the bird itself used for food or sold by the owners of the estates on the open markets. The feather skin is sold by the game keeper to agents buying this commodity for the fishing tackle supply and fly tying materials dealers. The Golden pheasant, is a more cosmopolitan product of the Asiatic countries where the natives kill these birds for food, as well as sport by some of the chief men, save the skins to sell to traders.

Africa and Asia seems to be the greatest source of feather, furs and hair for American anglers fly tying hobbies and uses. From Africa comes the major part of the wild mallard duck skins, a big feature in barred breast feathers that are so often seen on the standard old trout, panfish and bass patterns we all swing to sometime in our fishing fancies. The Reuben Wood, Professor and the sweet old Cahill are some every fly fishing angler reading this will recall in the gold and sunlit tint of barred wings. The fan wing patterns of most of the dry flies are made from the rust-colored throat feathers of the wild mallard. And, from the wing quills and secondary wing feathers comes the close, wavy-knit filaments we so like to shape into the perfect low wet fly wing or a perky type of divided winged dry fly. The wild mallard is hunted heavily by the African natives for food and the skins are sold to the traders. In the South Pacific islands the Bali duck, a beautiful fowl, replete with fine, colorful feathers is collected for the angling trade. It's the tropical teal that offers the fly dressing angler the rare breast feathers it sports, each one of which has a dark spot on its fan near the upper edge. The feathers make attractive fan wings and divided wing trout, panfish and bass flies.

The Indonesian duck is another that is trapped by the natives of that terri-

tory and used for food, the skins carefully cured and sold to the feather trader. It is quite a large duck, the skin has fine feathers with plenty of them to suit the taste of any fly tyer partial to colorful patterns. The side feathers of this duck are often used for feather wings on streamers. They are long, shapely, pointed from dark borders to a creamy plain center. They make lovely flies, streamer feather wings and tippets for some spent wing flies for trout and panfish angling.

Maribou feathers so popular with crappie and trout fly anglers in making a large, creeping, crawly and breathing fly are collected by the African natives for the traders from a large heron-like bird. The African bustard is another source of feathers that can not be overlooked. These birds are about the size of a large turkey, their wing feathers are extremely valuable for salmon fly wings, for wing dressings and tail dressings to the bass and trout flies. A strange feature of the fly tyers source of material is the commonly used goose quill feather. These are very difficult to obtain since they are imported into this country from Central Europe where the farmers grow their geese, herd them to market, rather than shipping them in cages and coops. When the goose is confined in a crate or cage it quickly beats the ends of its long wing quills to a ragged and useless mass. Herding the birds overcomes this and from those countries we get our best goose wing quills, waxy, perfect material for large bass fly wings and spinner fly wings.

Many more strange features in the collecting of furs, skins and feathers might be mentioned: Tinsel from France, where this bright metal ribbon was originally designed ages before the advent of the printed word; flosses from England, some from our own United States, of all colors; spun fur from a giant rabbit native only of Japan and whose fur is spun into long threads by hand there; fly tying thread of nylon, from the Du Pont Corporation of Wilmington, Delaware; a plastic-like tenite cement made from an old German formula used to cement the head of the fly making it waterproof and secure.

Here in the U. S. A., we put the final touches to this array of materials that make up flies the serene and studious angler uses on his days a-stream. Truly, the American angler is a real Cosmopolitan as he manipulates his lures of fur and feather from all parts of the world in dashing white water or on tranquil currents.

WHAT IS WATER WORTH!

(From page 7)

It is readily agreed that while we are able to turn on a spigot in the kitchen and get all the water necessary for our everyday living, little thought will be given to how much remains at the other end of the pipe. Few of our citizens ever wonder where the other end of the pipe is, or whether there is sufficient water to be had—they simply use what they need and turn off the spigot!

We—the American people, cannot afford to wait until the time comes when the spigots only drip! If we do—our children and their offspring will be sure to point their fingers at us for not safe-guarding their rightful heritage. It is our sacred duty to those who will follow us in this great country, to start now—everywhere in the nation, to plan the best management of our water bank so it will insure dividends for them.

Along with sensible watershed management, there is use for many small dams on the head waters of every river in the nation. Through such a plan, water which falls in rainy seasons can be held in reserve until needed and released down stream in usable quantities. This plan of water conservation is much more valuable than to catch it in huge reservoirs

after it has gone below where it is needed most.

The American people, whether they live in Idaho, or in my own beloved Pennsylvania, or elsewhere, have always been capable of meeting any challenge, if given a chance. If they will assume the responsibility of water management at state or local levels, they need have no fear of future water problems.

People who are satisfied to sit back and "let Uncle Sam do it," are losing their true American spirit. Our forefathers had the initiative and courage to do for themselves. Their blood still runs in our veins, and I am confident that with a good workable water policy, we can, and I am sure we will eventually solve our future water problems.

In answer to the question of what is water worth, it can be said that it is worth everything for our very lives depend on it!

THE UNVARNISHED TROUT

(From page 11)

borne sounds—unless they be exceedingly violent—penetrate into the water. Practically all of them, such as human conversational tones, bounce off. The sound of an oarlock, the scraping of feet on the bottom of a boat, and the lowering of an anchor chain may frighten the fish but the chances are the movement of the person creating these sounds is more alarming.

Doubtless a trout is subjected to enormous noises in turbulent stream water but like an engineer working in a powerhouse, he accustoms himself to them, or he'd go crazy! For self-preservation, however, the fish may distinguish those which mean instant danger. Once again, the engineer in the powerhouse can sit and read a book amongst all that noise—but yet, should there be the slightest off-noise indicating that there's something wrong with his machinery he'd hear it immediately.

Bob's great trout had an inner ear—as do all trout—but it is highly doubtful if he can hear out-of-the-water conversation. Hence Bob could have called to his partner, Jim, without disturbing the lunker. Actually, while walking upstream, I have discharged

a shotgun over rising fish without affecting them. But then, I have moved heavily on a spongy bank and the feeding stopped abruptly.

Vibration: Through the lateral line—that tiny fine line running down the fish's side—the trout has long-distance feeling. Bob, certainly, should not have stormed into the water, however excited.

Perhaps the least known of the trout's senses is this lateral line. In reality it is a highly sensitized auxiliary nerve system, reaching out beyond the fish and sensitizing him to vibrations.

Anatomically, the lateral line consists of a large nerve which runs down the fish's side, just under the skin, with numerous small branches protruding to the surface through holes in the scales along this line. A trout's scale is so minute that these nerve holes can be seen only through a microscope but on the large-scaled tarpon this nerve hole can be as large as a pin-hole. With these minute nerve ends, the trout gets the "feel" of the water. When this lateral line is severed, he loses not only his direction in the current but also his ability to travel in a straight line.

Comparatively little is known yet about this organ but it is evident that it is very sensitive to vibrations in the water. Hence if an angler walks heavily on a quaking bank, the fish may receive warning through this lateral line rather than through the inner ear. In quiet water, therefore, a fisherman cannot wade too carefully and he should avoid knocking rocks together. In netting a fish, too, he should avoid brushing against these lateral line nerve-ends with the ring of his net unless he wishes to provoke another mad dash for freedom—which not infrequently can be successful to the trout.

Refraction: It may be possible, perhaps once in a thousand casts, for a tournament caster to put down two successive 50-foot casts smack-dab on a trout's nose—providing it's a fairly broad nose. But with the average angler, it's highly improbable, particularly when wading in deep water!

Even so, if the fisherman were right in supposing that he was putting his fly exactly over the nose of the trout lying in three feet of water, the chances are he would be off at least a foot because the trout is not at all where he seems. Almost every angler who has taken high school physics, has put a cake of soap in a bathtub and kept it out of sight of his eye only



C.A.N.

to find as the water filled the tub that the non-floating soap cake gradually rose into view. And not only did it rise, but it also seemed to move farther away. That's due to the bending of light rays in water which enables both trout and trouter to look around corners. Hence, to play the fly smack-dab over the trout's nose necessitates a shorter cast—and the deeper the fish is resting, the shorter the cast to place it over his nose.

Hence, the chances are good that Bob overcast him.

Refraction present some very interesting problems to the fish. When the fish looks up, he has a circular window of vision which becomes smaller as he ascends and larger as he descends. Outside of the trout's porthole of vision, in smooth water, everything appears like a mirror. Should something such as the hackles of a dry fly rest on this mirror-surface and dent it, the many-pointed reflection-dents could be seen by the trout.

Like with other animals, objects in motion arrest the trout's eye-attention before similar objects at rest. Hence, the fisherman should avoid any fast movements and be particularly deliberate as he approaches a quiet pool. It is a good practice to wade carefully into such pools and rest them—remaining motionless for five to ten minutes before casting. Certainly, the angler should not run as Bob did and “storm into the water.” Furthermore, whenever possible, he should not lead the fish. Instead he should place himself in the blind area behind the trout heading upstream. Or the angler should approach the trout with broken water between them because in rippled water the fish sees only a meaningless jumble of kaleidoscopic, ever-changing nonsense pictures.

Color: Trout not only distinguish colors but also shades of color even when daylight fades and long after the human eye fails to distinguish them. However, should the fish look at a dry fly directly into the sun, the chances are he's as color-blind as any human looking into the blazing sun. Although the trout has extremely acute vision, his pupils do not contract and he has no eyelids. Therefore when he looks into the sun he may well be near-blind. From a practical fishing viewpoint, then, Bob should have forced the trout to look into the sun instead of having the sun in his own face.

Native trout: Among most “local anglers” it's common practice to designate all trout as “native” whether they

be cutthroat, eastern brook, rainbow, brown or lock leven. Other handy local names are “harvest trout,” “red-sides,” “speckled trout,” and “silvers.” Bob's native happened to be a “brook trout.”

Growth and Age: There is no such thing as a full grown trout. Unlike most animals, a trout continues to grow until death doth him part. His growth rate depends largely upon two factors: temperature and available food. When most comfortable—in water from 56 to 60 degrees Fahrenheit with plenty of food, he can grow one inch per month until he gets along in age when part of his growth goes to his waist and he deepens in girth. For every 4.4 pounds he eats, he gains about one pound under optimum rearing conditions.

The growth rates of individual fish vary greatly. An 11-inch brown may be anywhere from 9 months to 9 years old! But on the average he would be three years old.



Of our fresh water game fish, the muskellunge is the fastest-growing as well as the largest. On the average, he is 30 inches in 5 years and at 20 years he is around 58. Next in rate of growth—on the average, of course—comes the pike, and then the Sebago salmon and rainbow trout when they are found in large lakes.

Wild trout vary in ages of maturity. Some attain the ripe old age of fourteen. These octogenarians are one in a hundred thousand, perhaps a million! Others turn in their chips at three or four. Usually the trout is two or three years before he spawns and boy trout

tend to be more precocious than girl trout. In adjoining lakes, with apparently the same natural food and temperature, trout in one lake grew to twenty inches in three years while their brothers and sisters in the nearby lake grew only seven inches and were ready for the grave—all to the dismay and delight of ichthyologists. When he is fourteen, he may be a great, great, great, great, great, great grandpappy!

Weather: Anglers who base their fishing trips on calendar conditions, lunar cycles, or the shinanigans of a barometer would do almost as well to flip a coin—this is the considered conclusion of the Institute for Fisheries Research in Michigan. High water temperatures, however, will cause a marked decrease in fishing. A full moon may make for slightly poorer fishing because fish feed at night—and perhaps they can find feed more easily by the light of the moon. However, an angler fishing when the barometer is falling will catch as many fish as when the barometer is rising, but when the barometer is steady there seems to be a slight improvement in over-all fishing. But only slight!

Clear day or cloudy, full moon or dark, wind or rain—regardless, weather has little effect on successful trouting say these researchers. Temperature of water, skill and stream know-how are other matters.

Hibernation and Diet: A trout's stomach in proportion to his size is comparatively large and his intestine is unusually short. This is because he is carnivorous and his digestion is rapid. Usually he eats frequently except when the water becomes exceedingly cold or warm. As the trout matures and takes on girth, his menu changes from delicatessen tidbits to more substantial fare, meat-and-potatoes. As he grows, the proportion of surface flies drops off gradually while below-surface food increases. It is possible to take sizeable trout 'midst snow and ice with dry flies in sizes going down to tiny No. 18 in mid-winter! Bob's notion that he stuffs his belly full of delectable dry flies before hibernation is pure moonshine.

Striking: Certainly it is the artist's prerogative to draw a beautiful trout arching gracefully out of the water 'midst breath-taking surroundings and describing a perfect rainbow arch while pouncing upon a tiny dry fly always with deadly accuracy—the bouncing action of the current or the disturbance of his own rise notwithstanding. But trout just naturally don't like to

take their food the hard way! This doesn't mean that a trout won't come clean out of the water for a fly—particularly the rainbow. A more likely explanation however is that the trout comes at the fly with such a rush that his momentum carries him well beyond the surface of the water and that he carries the fly with him on this upward surge. Or should he have missed, it is not beyond the realm of possibility that in coming down he may be snagged in the mouth. But rarely.

Bob's description of the trout taking his fly on the way down was artistic license, pure and simple.

Speed: Although the trout has been hailed as a terrific scrapper—"ounce for ounce without a peer," "rushing with express-train speed," and "traveling faster'n greased lightning," the fact is that a trout, as fish go, is not a speedster. His top burst is about 8 miles an hour. Where a 14-inch trout can just hold his own in water traveling 11.4 feet per second (7.77 plus miles per hour) a western sucker has been clocked at 10.6 feet per second (7.22 plus, miles per hour). Porpoises, which swim with an up and down motion, can travel at 30 miles an hour while sailfish have been timed at 50. In comparison, a man's top speed for 100 yards is about 20 miles per hour; an antelope's around 55; and, of course, many birds can travel beyond 100 miles per hour.

When swimming downstream, the trout's ground speed is increased by the speed of the water which may add three to four miles an hour, seldom more, making a total of 11 to 12 miles an hour.

Locomotion: The shimmying tail-dance attributed to the trout is a wonderful delusion. The trout's fins, including the tail, have little to do with his forward motion—more with his stopping and balance. Actually, a fish can navigate with all fins removed, including the tail. Lateral muscles, the propelling force, are used much the same as a skater pushing from side to side. Because the trout has difficulty in backing up, unless he floats backward with the current, he spends most of his time heading upstream from where most of his food comes—but when he has too, he can turn around very quickly.

Elevation: The "boiling up" rapid ascent of Bob's trout from the bottom of a 25-foot hole to the surface sounds extraordinarily well, but it is usually fiction. A trout doesn't like to change

his elevation more than six feet. In ascending only 10 feet, the trout goes through a pressure change comparable to a human's in going from sea level straight up to 10,000 feet! Now make it 25 feet—which is comparable to 25,000 feet!

A trout expends precious little effort in day to day locomotion as evidenced by some of the tremendously long up-river migrations which sea-going rainbow perform, travelling a thousand miles of heavy water with little or no food. Part of this ease of locomotion is due to trout weighing virtually nothing in their element—water. In water, a five-pound trout weighs less than a cube of butter! Besides his air bladder gives him buoyancy. To cleave the water, he has a well-nigh perfect streamlined figure with the maximum size just behind the head, a sixth of the way back. His snub nose is rounded and his body tapers beautifully from shoulders to tail. To facilitate his motion, he lubricates himself constantly with waterproof slime which is slicker than a whistle. (Good to apply to a leader if you want it to sink.) To help build up speed and reduce friction he emits jets of water through his gills to smooth the turbulence of his motion.

Dry Hands: Whether a trout is handled with dry hands or wet hands makes little difference to the survival likelihood of the released trout. Despite Bob's commiseration, rubbed off scales are usually replaced.

To be sure, there have been voluble advocates of dry hands and even more of wet. Actually, it makes little difference. The slight advantage of dry hands is that the angler does not need to squeeze his fish quite as tightly to remove the hook, but this is offset by removing more mucus and scales. With a deeply imbedded hook, the physical injury to the internal anatomy caused by its removal would be more apt, perhaps, to bring about death than using wet or dry hands.

Should some scales be removed from the fish in handling, the fish himself will usually replace them promptly so long as the scale pockets in which they grew were not injured too badly. These replacement scales grow fast at first to catch up in size with the others and then they slow down to keep pace with the others. Why? That's hard to answer but a human's eyebrows are much the same.

A fish carries his lifetime biography with him as no other animal does. By studying those scale in his pocket-



book Bob could have determined that trout's length and age much more precisely than by guesswork. More than this, a microscopic examination would have revealed how well the trout fared from winter to winter, how old he was when he assumed parental obligations, the success of his sex life, the quality of his fare from month to month, and whether he roamed to sea or stayed put at home. That is because each scale adds many new rings each year and the spaces between these rings vary—particularly during good feeding, spawning and sea-travel. No palmistry here: it's black and white.

Chewing A Fly: It sounds very gamey for a big stubborn trout to sink to the bottom of the hole and sulk while chewing a fly to ribbons. But actually should a trout masticate his food as all good little girls are taught to do he would suffocate as he would be unable to pass the current of water through his mouth and over his gills which is absolutely necessary for breathing. Much more likely, the angler's fly is torn when pulled across the trout's sharp teeth—which are there not for chewing but for grabbing and hanging on to his victims for dear life.

Memory: A trout remembers, particularly painful experiences. It is highly doubtful if Bob would have gotten him to raise that evening.

A hooked fish suffers pain and wants to get off but his pain may be much



less than that of mammals or warm-blooded vertebrates. And most assuredly, he carries a memory of that painful experience. How long, is debatable. However, he can be taught to swim a maze for food quite quickly. He can be taught to respond to only slightly varying shades of colored pippettes for food even in ultraviolet colors which humans cannot see. He remembers symbols—circles or squares. In short he can be taught to decipher simple hieroglyphics. Painful memories remain with him longer than pleasant—he's human to that extent. It is highly doubtful, therefore, that Bob could have taken the trout that same evening or even the next day. But any fisherman can tell you, stranger things do happen and a trout can be caught with a similar fly still stuck in his jaw!

In the light of this more modern approach, let's now reconstruct Bob's story—letting the adjectives go to gifted writers:

"And so," says Bob, "I saw this trout a-raising. I sneaked up on the pool, careful-like, keeping myself well behind the fish. I entered the water slowly, watching not to strike rocks together. Once I worked myself into position, with the sun on my back, I rested the water for five minutes. In getting off my first cast, I tried to drop my fly a little short of the fish. No dice. The second cast was better and the biggest "brookie" I ever did see in Kettle Creek came up with a furious drive, his momentum carrying him clear out of the water in a rainbow arch beautiful to see: I struck easy and was fast.

"With a swirl, the huge fish headed downstream about 10 miles an hour. My reel screamed. Scrambling to the bank, I high-tailed down the river bank with him. As I gained, I re-

covered line. Then he settled down to a dogged fight but as I tapped my rod butt he started upstream, more slowly of course, because he had to fight the swift three-mile-an-hour current.

"He wound up this strong run with a series of fine arching leaps which set my heart to pounding. Finally, I worked him in gently, and eased my fingers into his gills, careful not to touch his sensitive sides and set him off on another wild rampage. As I lifted him, he gave a great convulsive twist and dropped to the water. My hook tore out and he swam slowly away to live, and perhaps be taken by a better angler. Right, Jim?"

"That's right, Bob! Absolutely!"

SPINNING COMES OF AGE

(From page 13)

Spinning tackle can be as deadly as you make it. A seasoned angler will catch more fish whether he be armed with spinning tackle or something else. It's true that you'll probably catch more fish with spinning tackle than you have ever caught in your life, but once you get fish catching and killing out of your system and begin to lighten your tackle with lighter rod, lighter line, and lighter lures, you will arrive at the sportiest type of fishing to be had today. You'll respect the fish and thank God for the privilege of open waters and the wonderful feeling that comes with *releasing all the fish but those needed to smoke up the pan.*

ALIBIS

(From page 23)

returning to the big boat with its ice and mosquito netting and similar comforts for meals and to sleep.

Three of us were using spin gear and the fourth member, a big fellow who was called Shing, was doing all right by himself with the conventional casting rod and plug lures.

We had set dinner hour of the second day as the deadline for the

contest to end. By lunch time, however, I found myself in trouble. One of the rules had been that we each start with an even dozen lures of our own selection. I had decided in favor of red and white surface plugs and small weighted yellow feathers. Month in and month out, I have yet to find a better all around lure for Florida waters than the familiar "yellow jig." This day was to prove no exception. But what I hadn't counted on was the fact that, in my enthusiasm to remain in the lead, I was to lose all my weighted lures in the mangrove roots of the overgrown shorelines!

When the last one went my luck went with it. Try as I might with the surface plugs I just couldn't keep abreast of my companions. Gradually I dropped from first place to second, then to third.

You guessed it. By dinner time I was a poor fourth. When I returned home and had to explain to The Woman the extra expense involved on this trip, all I could say bitterly was: "If only I had selected a couple more of those feathers at the start—maybe even just one more would have done the trick—I'd have shown those birds!"

That was my alibi.

YOU SHOULD'HA BEEN HERE LAST WEEK!

(From page 21)

should'ha-been bug." Perhaps pride of ownership accounts for it. A man likes to show off his own fishing water just as a proud father exhibits his first-born. No matter how good, or how bad, you think his fishing is, always he tries to make it sound like the absolute paradise, Utopia. Consider, for instance, what happened at Echo Lake, Vermont.

We had started early that morning and we reached camp at about four that afternoon, dog-tired after more than four hundred miles of hot roadways. Our host saw to it that we were comfortably settled in our cabin and the settling process gradually resolved itself into an impromptu cocktail party. Naturally the talk was of fishing and after hearing tales of the monsters yielded up by those waters, I walked to the window to look more closely at this miracle lake. The sun was

setting behind the hills and the surface of Echo Lake lay like a mirror in the afterglow. Over the top of my high-ball glass I glanced up the shore line in the direction of the inlet. Glory be! Where the brook flowed in the mirror surface was broken literally by hundreds of dimples and swirls.

Of course you know what happened. My long-suffering wife and my son went to dinner while my host and I went fishing. At the mouth of the brook a hatch of big May flies was drifting, so I tied on an artificial to match. It was murder. A trout would rise, I would spot the artificial in the circle and straightway I would be fighting a fish. We kept a few for breakfast and then released the rest. I know I caught more than fifty, some of them around the two- or three-pound mark. After an hour or so hunger gained the upper hand over fishing that was really *too good*, so we rowed back to a cold dinner accompanied by a touch of cold shoulder on the part of our two helpmeets.

We stayed for five days. The big May flies continued to drift and the trout fishing continued in a constant state of excellence. At last the day of departure rolled around. The car was packed, my small son was run to earth and planted safely in the care beside his mother. Our host and his wife were standing around to say good-bye. I shook hands with George and told him he most surely had a superior brand of trout fishing. Then the inevitable happened.

"It was all right for that kind of fishin'," he said, "but a couple of weeks ago the weather was still cold enough for the landlocked and the lakers to be cruisin' in-short after minnows. Fish that went four, six, eight pounds. We used fly rods and streamers and we *murdered* 'em. You should'ha been here *then*!"

All my life I have wanted to land a really big squaretail, one that would weigh four pounds or more. Brown trout up to six pounds and rainbows of the same weight class have come to my lures down through the years, but out-size brook trout have been lacking. To be sure, I rarely fish waters where large brook trout live but that in no way alleviates the urge to take one of them. I decided to do something about it.

Of course I have known for some time that northern Quebec, notably in Laurentide Park, is the ideal place to find big brook trout so when my friends Gust Bedard and Phil Gagnon

of the Quebec Commission asked me to come and fish the Laurentides I accepted with alacrity. Joe Weber, of St. Lous, was to be one of the party and he wrote me that he was bringing Mrs. Weber with him, so Mrs. Knight decided to go with me.

The trip to Quebec was tiresome but uneventful and at last we checked in at the famous Chateau Frontinac. Helen and Joe Weber already were there as were Gust Bedard and Phil Gagnon, who live in Quebec. George Carpenter of the Montreal Gazette arrived shortly after we did. During the talk-fest that evening in the grill of the Chateau the conversation naturally dealt with fishing. I told this assembly that it had never been my good fortune to land a big brook trout, one of four pounds or better. Did they, perhaps, think that I might be able to snag a four-pounder on this trip?

This naive query brought forth much merriment. "Four pounds? Haw, haw! Listen, Jack—your arm will get tired landing three- and four-pounders. What we want you to bring home is a five- or *six*-pounder. Plenty of them there and our guides know where they live."

"You won't hand me the old 'you-should'ha been-here-last-week' routine, will you? That's what I always get, no matter where I go."

Relax, Jack," said George Carpenter. "I, *personally*, will *guarantee* you a four-pounder."

"And I," said Phil Gagnon.

"And I," said Gust Bedard.

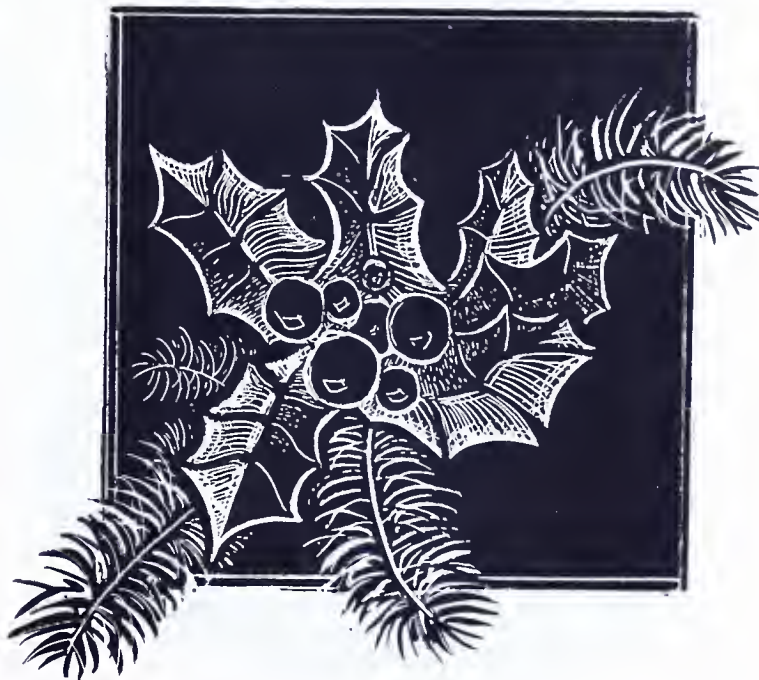
That night I slept fitfully while I

landed huge brook trout, the size of tarpon.

From the city of Quebec the ride to Laurentide Park is over good, paved highway. Once inside the park gates, however, the picture changes. We entered the park on June 2nd. This, in Quebec, means that winter has only recently relinquished its grip on the land. At lunchtime I threw a snowball in the general direction of the lady of my choice, not that I intended to inflict bodily injury upon her, but because I wished to have the unusual experience of throwing snowballs on June 2nd. The weather was cold enough to require topcoats and the trees were leafless.

At La Gite we established the ladies in base camp, changed to outdoor clothing, and shoved off into the wilds. And I mean wilds. As yet the frost was not completely out of the ground and the roads were frightful. Our destination was the camp at Lake Les Ecorces. To reach it we must drive to the dam at the foot of the lake and take a boat from there to cover the last eight miles. In Joe Weber's Lincoln we almost made it, but a mile from the dam the big car hung itself on the crown of the road, all four wheels spinning clear. Somehow, with much pushing and wading around in the mud, we managed to park it in a clearing. Baggage was transferred to a lighter car and we finished the last lap on foot.

It is not my intention here to give a travel talk. Instead, I wish merely to show to what lengths a fishing fanatic will go to hook, play and land



one elusive four-pound squaretail.

The following morning I learned that our journeys were not ended. In Price Brothers of Canada's "alligator" (a work boat with a diesel motor and a welded-steel hull) we did another eight miles up through Les Ecorces Lake and River to the Trompeuse Rapids. There we started our fishing.

With high hopes and a thumping heart I rigged my tackle, climbed into a canoe, and cast a fly into the turbulent waters. At once I had a hearty strike. He fought a good fight, what there was of him, and he was summarily landed and released with instructions to increase his nine-inch bulk to four-pound proportions. Undaunted I cast again. I fished small flies, large flies, streamers and buck-tails. I fished them shallow and deep, slow and fast. And I caught trout, plenty of trout. Ten of the larger ones, weighed together, might have tipped the scales at four pounds. I wouldn't know as all of them were released. Then it came, this time from my guide who speaks fairly good English.

"Last year, on same day, June 3rd, I have Mrs. Friedman right here in canoe. She land three-pound, four-pound trout til her arm too tired to cast, maybe twenty, thirty beeg feesh."

For five days we fished the Trompeuse Rapids and the waters thereabouts. Two more days were spent on Lake Metascouac which involved a brutal six-mile portage over two mountains. I saw plenty of beautiful

trout water, magnificent country, a dozen or so moose, and millions of lengths of pulp wood which encumbered our fishing no end. Actually I did see one four-pounder that Phil Gagnon managed to haul out of Big Creek. Then we started the long trek home.

In Quebec we said good-bye to Phil Gagnon and Gust Bedard. I knew what was going to happen but I had to be polite and stand there and take it. This time it was Phil Gagnon.

"Too bad about the fishing, Jack. Weather and water still a bit too cold for the big fish to be moving. Better try it again next year. You should'ha come up a week later."

It's a poor rule, however, that won't work both ways. Here in the Pennsylvania mountains we have some very acceptable brown-trout fishing. Not only that, but within a quarter of a mile of my house flows one of the best streams in the state. Each year we have a succession of fishing guests who come to match wits with our wily brown trout.

This year a friend from Minneapolis came on to see if our fishing was really as good as I said it was. He chose a miserable time for his visit. The weather was cold, rainy and sunless and our larger streams were too high and cloudy to fish. We did manage to find some fishing for him but it was not what I wanted to show him. Our fly hatches, because of continued adverse conditions, were long overdue and I knew that the first warm, sunny

day would show us some dry-fly fishing that we wouldn't forget in a hurry.

I explained all this to him, urging him to postpone his departure until we could have at least one sunny day. However, he felt that he had taken time enough away from the office. Regretfully we drove him to the airport. While we stood on the ramp, waiting for his plane, the sun broke through and the overcast drifted away over the mountain across the valley—a perfect fishing day.

"Listen," I told him, "you can't leave now. This is what we have been waiting for. By the time we change clothes and drive up-river, the little Quill Gordons will be drifting on the surface and every brown trout in the stream will be stuffing himself with this long-awaited feast. Put off leaving until tomorrow."

He smiled, shook his head, and held out his hand to say good-bye. "This afternoon," he said, "I have an appointment in Chicago."

We watched his plane take off and vanish westward; then we raced home, hurried into our fishing clothes, packed our gear in the car, and drove to our favorite trout waters. The stream was quiet when we arrived so I found a comfortable seat on the bank. For half an hour nothing happened. Then I saw the flash of a rising fish. Concurrently up the stream came the first of the Quill Gordons, winging his way in nuptial flight to fulfill his appointed destiny. Thinking regretfully of my friend, also winging his way to an appointment in Chicago, I waded out through the shallows, unlimbering my tackle the while. For the next three hours we hooked fish, plenty of fish. We landed some, lost some, and suffered the indignity of a few broken leaders. In short, we had the time of our lives.

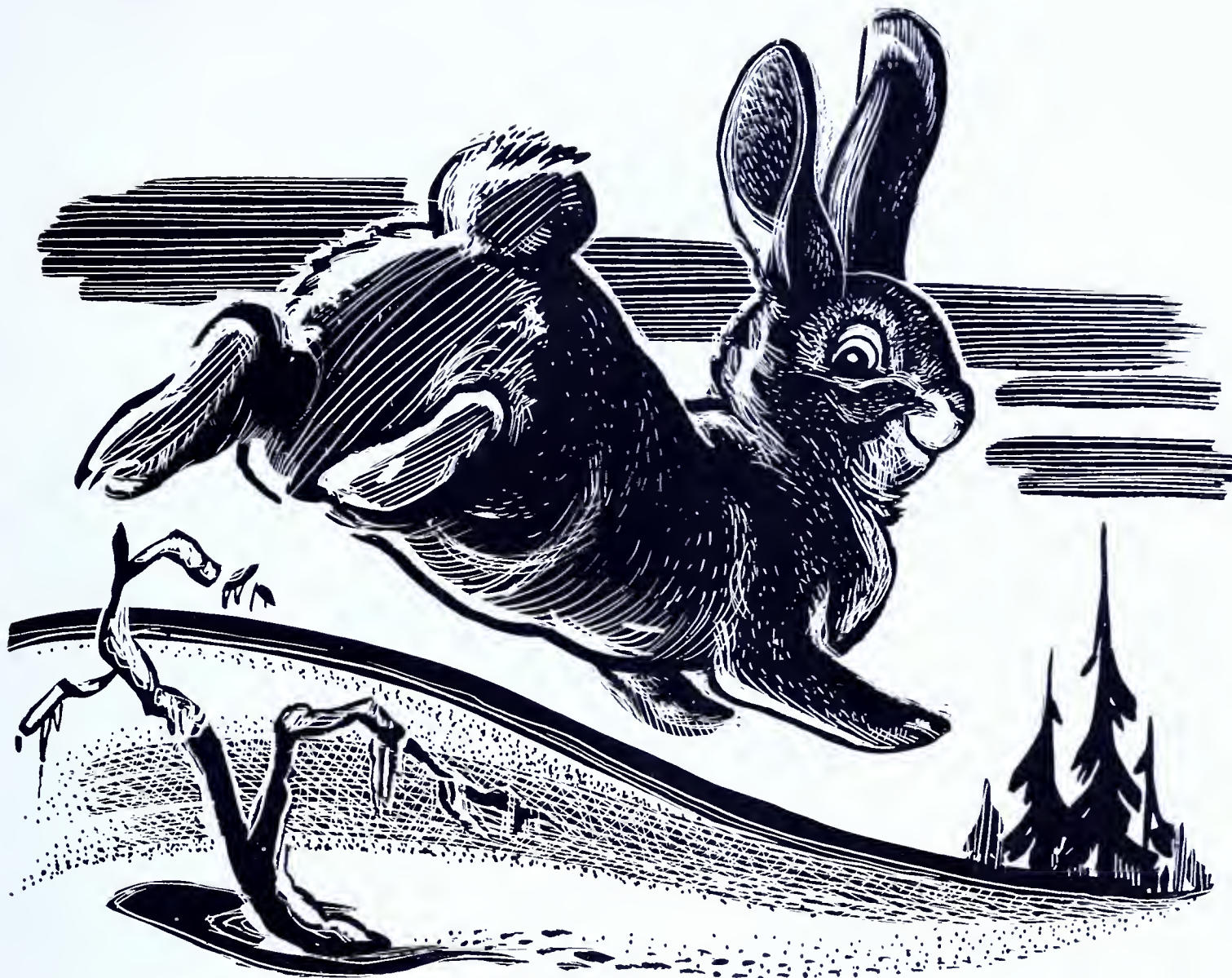
When, at last, the hatch was over and the trout no longer were rising, we waded ashore, cleaned our catch, and drove home. Days like that are well worth waiting for.

The next day I couldn't resist the temptation, so I wrote my friend a latter.

"Dear Jack," I said in part, "you left just at the wrong time. As soon as your plane was out of sight, Dick and I went up-river. As expected, the Quill Gordons were on the water and every trout was feeding. We *murdered* 'em!

"Brother! You should'ha been here yesterday."





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